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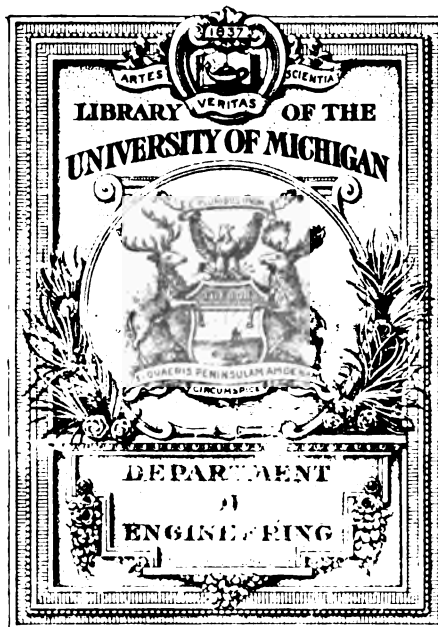
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[JANUARY TO JUNE, 1912]

THE RUDDER

EDITED BY

THOMAS FLEMING DAY

"Wind happy ships that raise and make
Across the gaping bay,
To dance like bubbles in the wake
Of Westward flying day."

VOLUME XXVII




NEW YORK

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1912

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| APRIL—Block Island Boat. | |
| MAY—Thelma. | |
| JUNE—Flying Spray. | |

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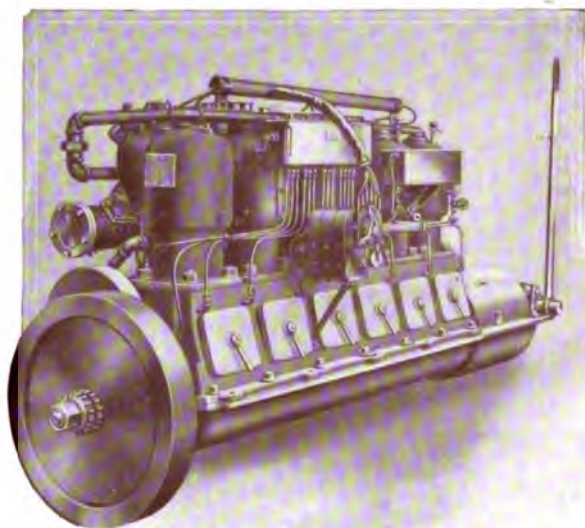
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1912



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SURPLUS \$ 250,000

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OF DETROIT

July 12, 1911.

Mr. John J. Amory,
Gas Engine & Power Co.,
Morris Heights, N.Y.

My dear Mr. Amory:-

I have your letter of July 10th suggesting that we enter the Rainbow in the Great Lakes Power Boat League Cruise to contest for a prize offered by Mr. Scripps.

I am not much on cruising myself, especially for prizes, preferring to go it on my own hook and at my own convenience.

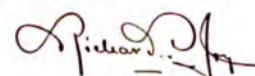
You will be interested to know that the Rainbow has logged a total of 15,500 miles since she came out, this being her fifth season.

She has undergone no repairs to hull or motor and insofar as I can see is in as good condition today as when you turned her over to us.

A record like this is the best prize that any man can have.

With kind regards, and thanking you for your suggestion, I am,

Very truly yours,



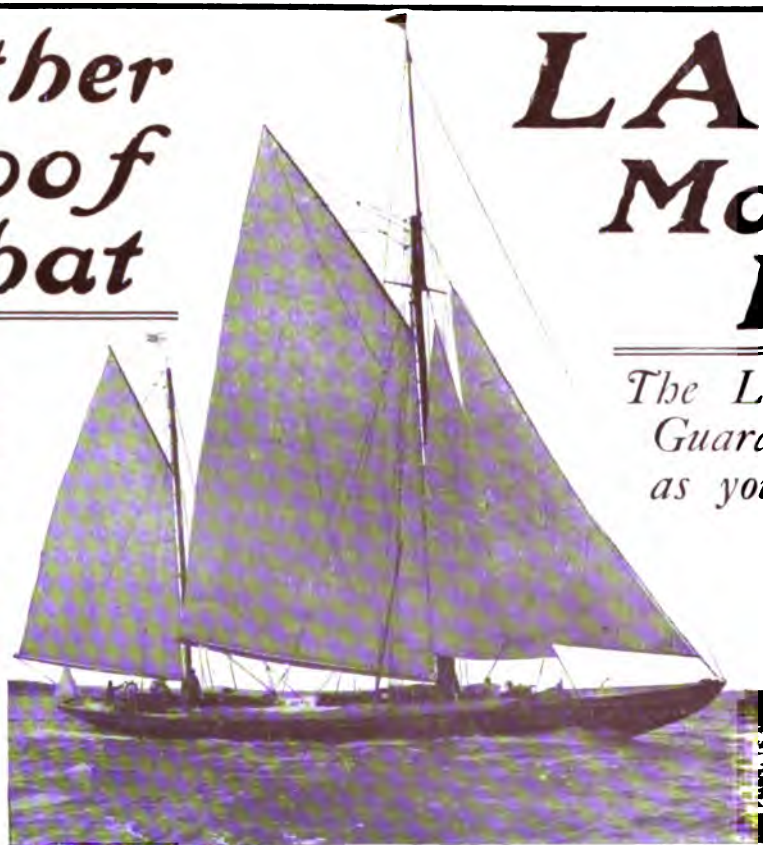
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Edited by THOMAS FLEMING DAY

Vol. XXVII

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No. 1

ROOKE'S GIFT

Gibraltar the Keystone of the British Empire



IBRALTAR, the Mons Calpe of the ancients, is one of the two pillars of Hercules; the other being Mount Abyla, was known to the Phœnicians in the early years of their voyaging, but according to the best of traditions it was left uninhabited until the Moor invaded Spain and established the Mohammedan dynasty that swayed that country for over 800 years.

On April 13, 711, the Moorish Chief, Tarik-Ibn-Zeyad landed on the Rock, and from this marauding, piratical gentleman the Rock took its original name—Gēbal-Tarik, or the mountain of Tarik. The present spelling is a corruption of these words.

In 1086 Gibraltar was in the possession of Caliph Yusef ben Taxfin, and at this time the Spanish Moors were at war with Alfonso of Castile, and getting the worst of it; so they cried out for succor to their brethren in Africa. In response, the fanatical wild men swarmed over the straits and poured into Spain, and not only defeated the Christians, but wrested the land from their more civilized and weaker brethren. The Rock at this time and for years after was a shuttlecock between the contending factions.

In 1161 a gentleman, who used most of the alphabet in his name—Abd-I-Mumen Ibu Ali—rebuilt and enlarged the original fortifications, and the place became the principal Moorish Stronghold and gateway for the

entrance and exit of the Iberian Saracen and their cross strait friends. In 1309 the Rock experienced its first regular siege, being attacked with all the proper preparation and warlike panoply of those days by Ferdinand IV of Spain. It was taken, and the banner of the crescent came fluttering down after floating for 598 years. In 1333 the Moors took the Rock, and again the banner of Islam floated above it for over 100 years, until, in 1462, the Duke of Medina Sidonia wrested it from the weakening hands of the dying dynasty that was soon to perish forever under the walls of Grenada. Altogether the Moors held Gibraltar for 726 years.

Up to this time the Rock had stood eight regular sieges; but its troubles were by no means over. Having rid themselves of their ancient enemies, the Moors, the Don Spaniards began fighting over the strong place; the Kings having repented the gift of the Seigniorial rights to the Sidonians, wanted the Rock back. The Dukes refused it, and then it was a case of cat watching cat, until the King-cat catching the Duke-cat unawares pounced on the fortress, and hey-presto! another master sat fast under the shadow of Mount Calpe. In 1504 Queen Isabella, she of the pawned jewels, died, and the Duke Don Juan de Guzman took occasion of the disturbance following her funeral to invest, besiege and blockade the fortress; but the inhabitants would have none of him, and fought manfully to keep the place for Castile, so that Don Juan was obliged to lift the siege and return to his ancient acres, the wiser and leaner for his adventure.

For thus manfully keeping the Rock for their sovereign the bold burghers of the fortress city received the title of *Most Loyal*, and a coat of arms was granted them, which consists of a castle with a golden key pendent and the inscription "Seal of the Noble City of Gibraltar, the Key of Spain."

For a thousand years or more the Iberian Eagle and

the Mauretanian Leopard had fought over this rocky lair; now there stalked into the field the great tawny creature, whose massive claws once struck into prey never relax their hold. In 1701 the Lion of the Seas placed his foot on the fortress, and roaring defiance settled down with it between his grasping paws to have and to hold against all the world.

It was not really a lion—it was a Rooke that seized Gibraltar. Sir George Rooke was one of those hard-fighting, hard-swearing, hard-living sea-dogs, that came in through the hawse hole and worked aft until they stood legs astride of the quarter-deck. From greased queue and canvas petticoat to wig and ruffles they worked aft, learning their trade as men only can learn it by hard, bitter, savage fighting against weather and foe, and they knew their ships from peak to keel, and from flying jib-boom-end to the ensign pole at the taffrail. Seamen, aye, Seamen, and more; for in those days it took weeks and months from Gibraltar to Whitehall and back again. There was no wiring for instruction to fight. It was strike; and, successful, all London was ablaze; thanks of Parliament; delighted ministers; jewel-hilted swords; kissing of the sovereign's hand; pensions; titles; and your head adorning a thousand tavern signs. Fail, and the Ministers washed their hands of you and your rash doings, parliamentary committees sat on you, the press reviled you and cried out for your disgrace; or, like in poor Byng's case, hounded on the Godolphins or Walpoles, until you were paid for your error of judgment or stroke of rashness by a brace of bullets. How the ministers stood on their toes and patted their chests when Vernon sailed home with the spoils of Porto Bello under the hatches. How the candles flamed in the windows, cheering mobs raved through the streets, and ballads

were written, and yarns of old Grogam's life and achievements hawked. Against this the picture of Byng seated on the quarter-deck of the Monarch with bandaged eyes, and the leveled muskets of the firing squad, the victim thrown to a bitter, senseless faction, by a cowardly, dastardly government clique that dared not face the maddened people, and say "We are to blame for the fiasco."

Rooke seized Gibraltar. He had the instincts of a great commander, and the courage to back it. It was a master stroke, but as big a piece of land-grabbing villainy as ever the Anglo-Saxon engineered. The Spaniards at the time, like the lion and the unicorn, were fighting over the crown, warring between a choice of imbeciles, and the English fleet mixed into the mêlée, opposing the Bourbon faction, for it was one of the Grand Monarch's moves to obliterate the Pyrenees. This was just before Marlborough and Savoy had administered the lessons at Blenheim.

Rooke seized Gibraltar in the name of one of the Spanish factions, but he kept it in the name of England. This capture took place July 21, 1704, after a siege of four days. As usual, Don Spaniard was caught napping, and the English pounced on him. It was the beast of prey bounding on the domestic animal. Up went the red cross, and a new era for the world's strongest and most famous fortress opened.

Rooke's news of his exploit was overshadowed by the glorious tidings of the field of Blenheim. France and Bavaria completely broken, flags, guns, marshals, and whole regiments taken, what was the capture of a barren Spanish rock weighed against such an array of trophies as John Churchill laid at the feet of a hilarious, grateful country?



Rock Looking S.S.E. from Spanish Lines. Neutral Ground in Foreground



Looking North from Moorish Castle, Neutral Ground, La Linea and Spain in the Distance

But to-day, 200 years after the field of Hochstett, which would you choose, Britisher, the flags and flummeries of Marlborough, or the Rock which Rooke handed you? The question that brought the allies and France to face each other that August morning across the swampy brook is dead—dead as Tallard, dead as Eugene, and dead as Louise of the high heels. But what the Rock stood for that morning it stands for to-day. You would not trade it for the memories of a hundred fields like Blenheim, for it is the keystone of your Empire. Lose it, and the arch will crumble up and fall. 'Twas Rooke's gift of the Rock that made the Empire possible. That gift, of all events of Imperial history, is the most important. But how fared our old sea-dog for daring to seize the plum, without the knowledge or consent of his bewigged and betitled superiors?

Rooke having seized the Rock in the name of Austrian Charles, determined to keep it in the name of English Anne, and it was the banner of St. George—not that of St. James—that went fluttering up the halyards that Summer afternoon. This was the substance of the message that a fast sailing packet brought to her Majesty's Council.

Together went the powdered heads, and after much whispering and weighing this was the verdict: Censure Rooke by ignoring him, but keep the Rock that the bold admiral had dropped with a thud on the toes of the Grand Monarch. Poor Rooke's failure against the French next year gave the home-rulers the opportunity, "Go and cultivate your garden." Exit Sir George from the stage of history.

Nation-Kings and King-Nations, what hypocrites!

The Royal frown: "Sir," thunders the monarch, "how

dare you suggest to us that we annex to our domains the fortress and towns you have so gloriously captured from our brother King Weak?"

"Sire," answers the bowing bravo, "you commanded me to make war, I made it; you commanded me to defend your frontiers, I defended them; these fortresses and towns overshadow your frontier, I took them; your frontier is no longer overshadowed."

Royal smile: "Their possession is necessary to our frontier's safety, then God wills it; let them be annexed to our domain. But stay, we must compensate our dear brother King Weak for his loss. Let our ministers quietly intimate that we have no objection to his joining the territories of Prince Weaker to his own."

Behold all Western Europe weeping over the partition of Poland. The deed accomplished, the shocked nations wipe their eyes, and putting away the handkerchief look stealthily about to see what they can seize. Monroe and Canning lay their heads together, and out comes the warning to the world, hands off America. The ink is scarcely dry when the United States has Spain by the throat and picks her pocket of Florida. Then a few more years of hypocrisy, while U. S. weeps over the wrongs of Greece, Italy and Hungary, and poor Mexico is held-up and robbed of half her territory. Robbers! Pirates! Anglo-Saxon, I glory in you; you of the sword and musket; you of the bloody trail and wreck-strewn wave; you who have trodden down and plundered the weak of Earth; but the sniveling hypocrite of Whitehall and Washington, the smug, lying, squirming, praying, protesting, rascally statesman, I scorn and detest!

Spain did not take this robbing quietly. France came to her aid, and the Rock was besieged. This was the

twelfth siege, and it cost the besiegers 10,000 men. It was during this siege that 500 volunteers under Colonel Figueroa climbed the East face of the rock by a path called Senda del Pastor, which was shown by a goat-herd named Susarte. They hid in St. Michael's cave, and at night passed over Charles V's wall, and surprised and put to the sword the Middle Hill guard; but, later, meeting the Grenadiers of the Guard under the Prince of Darmstadt, they were bayoneted into oblivion. Seventy thousand shot and eight thousand shells came into the fortress during this siege, but the loss to the garrison was less than five hundred.

In 1706 the ministers at home did a wise act; they proclaimed Gibraltar a free port. This made the town at once a great commercial, smuggling center, and crowded its bay with shipping and its streets with rogues.

But let us not give the big-wigs of Whitehall full credit for this touch of uncommon sense; the freedom of the port was in part forced upon them by the Emperor of Morocco, a far-seeing gentleman, who refused to allow the Britisher to find and buy in his dominions materials for their fortifications, unless the British Government gave to his subjects the right to trade freely with the Rock.

In 1713 the big-wigs, who were settling the affairs of Europe at Utrecht, gave Gibraltar to Great Britain. As she had it firmly, and as Spain was down and out of the great power class, this was the wisest and easiest way of closing an incident. But the Spanish Government and the Spanish people refused to acquiesce.

In 1727 they had another try at the Rock. This, the thirteenth siege, ended like the last, and peace came and lasted until 1779, when Great Britain managed to stir up a hornet's nest and got severely stung.

This led to the Great Siege of Gibraltar—the longest, but not the bloodiest siege of modern times. It lasted four years, during which time Spain and France spared neither powder, treasure, body or brains, to win back this coveted piece of stone. It was during this siege that the final attack was made with armored batteries—the invention of a French engineer—they were destroyed by the garrison using red-hot shot. General Elliot, who commanded the fortress, was well rewarded for his services, and he deserved all the pensions, medals and titles, for never was a strong place more intelligently defended.

Since that time Rooke's gift has been left to bask in the security of its recognized strength. It is impregnable; starvation alone can capture it. Such is the history of the Rock. Now to a description of its self, its harbor, its town, its people, and its powers.

Walk you along a flat sandy beach when a ripple is being thrown directly in upon it by a gentle air, until you come opposite where a narrow ridged stone lies in the water a few feet from the edge. Sit down and watch what takes place. The waves strike the seaward point of the stone, split and run along its side, carrying in their folds particles of sand. Reaching the inshore end, the ripples rush and dash together, and losing their force flatten to a calm and drop their particles of sand. These particles gradually ridging up form a narrow isthmus that at last connects the rock with the main beach. Enlarge this little beach stone some millions of times, increase the sandy strip to an isthmus 1,000 yards wide and you have Gibraltar and its connection with the Spanish shore.

The Rock is a rock. In its case there are absolutely no qualifications. Nor does Gibraltar need an introduc-



Moorish Castle, from Near Water Port Gate



Rosia Bay and Admiralty Waters. Looking N.W. by N.

tion; it is the only unmistakable Gibraltar. To see it is to know it. The rock is oblong. Greatest length North and South three miles, three-quarters wide at its widest, and seven miles completely round. The highest point, O'Hara's Tower, is 1,408 feet above tide water.

The Eastern or Mediterranean side of the Rock is almost sheer cliff, as you will see in the picture, bare of vegetation, and unclimbable even for a goat. Part of it is now used as a water-shed, to collect drink for the garrison and the townspeople. The West or Bay side has a flat foot and a slope, and on this perches the town.

The Northern face is sheer cliff rising to the height of 1,400 feet, and is the view most familiar to the present generation, because it has been prostituted to the vile purpose of advertising a New Jersey insurance company.

Geologically, the Rock is not what it used to be. It was once part of the mainland of Africa, a portion of the great isthmus connecting the Iberian Peninsula with the Northwest corner of Africa. The straits are due to a sinking, possibly sudden, by a mighty earth-split that opened the Atlantic to the Mediterranean. Joined to Africa, Gibraltar was one of the towers of the bridge over which wandered the elephant, lion, ox, deer, bear and horse of those days. They died in its caves, or else were dragged there to be devoured by the savage man of the times, who picked the marrows and left the gnawed bones with his fire ashes and stone weapons to a curious posterity. What a choice stronghold that rock must have provided for the cave man. Probably they coveted, attacked and plundered each other's caves. Wretched, skin clothed beings, they knew no better! The wonderful torch that first flamed from the Mount of Calvary had not lighted their horizon, when they thieved they

thieved as thieves, murdered as murderers, without a cross on their banner or Bible under their cloak.

From a distance Gibraltar looks barren; but a closer eye will discern on the West face a plenty of greenery—trees, shrubs and grass. There are many flowers and ferns indigenous, and many imported species. The clematis, rose and geranium grow wild, and among the trees may be found the fig, orange, olive, almond, lemon and the ever-blessed vine.

The whole Rock is a fortress. The town is within the fortress, and is only there by sufferance. Excepting the descendants of the original Spanish citizens, whose rights were recognized and secured by the Treaty of Utrecht, no civilian has the right to be on the Rock or dwell in the town. He is only there by permission of the Governor. The daily visitor, the tourist, the man who comes to labor, is only there by permission of the Governor. If he so wills, the Governor can order every civilian off the Rock; and there is no appeal—they must go. This autocratic power is necessary to the security of the place.

The city has a civil population of about 20,000, and the authorities discourage an increase. Gibraltar not a fortress would be one of the large commercial cities, a place teeming with trade; but commerce and war won't yoke to the same car.

A British subject residing in the town must renew his permit once a year, and furnish a bond, if so requested by the authorities. An alien must have his permit renewed every three months, and must give a bond and produce a vaccination certificate. Strangers get a ticket each morning from the police upon entering the place.

The town hugs the hillside, circled by walls, narrow



Looking S.W. Toward Tangier



Battleship in Drydock at Gibraltar

streets, narrower lanes, steps, inclined planes, alleys, corners, squares, Moorish-Spanish houses, mixed with some bad English architecture. Such is Gibraltar the city. Streets filled with a people of all nations; white, black, brown and yellow; Britons, Arabs, Spaniards, Moors, Italians, Hindoos, Greeks, Negroes, Portuguese, Maltese, French, and Cook's Tourists. Shops everywhere; shops filled with the finest of wares at the most reasonable of prices. A free port, Gibraltar is an example of the astounding benefits of free trade, and refutes at almost the identical spot of its birth the monstrous fallacy of the customs tariff. Here you buy German goods cheaper than you can in Berlin; Massachusetts-made shoes sell for less than they do in Boston; Egyptian cigarettes at half the price they ask in Cairo. Everything is cheap, everything is good, except some of the alien shopkeepers, who are as tricky as a nutmeg Yankee and as crooked as a Chatham Street Jew.

Long ago Gibraltar had no really secure harbor; the bight around the North end was the primitive anchoring place, a fine holding ground with the wind East or North, but fully exposed to the Westerly and Southerly blasts. Then the old mole was built to shelter this bight, and this to-day is the public or commercial port. The great mole or admiralty mole is a magnificent piece of work, enclosing a large body of water in which a fleet can lie at ease; it also protects the dockyards, slips, etc. This mole is a gigantic concrete wall based in sixty feet of water. Commercial vessels or yachts are not allowed to enter the admiralty waters without permission. Foreign men-of-war are invited to use it, and frequently a foreign fleet is seen riding behind the white bulwark. The Dockyard contains vast quantities of naval stores;

as with Malta, it is a supply source of the British Mediterranean fleet.

The strategic value of Gibraltar is enhanced by the harbor being directly open to the sea, so that a war vessel can clear her mooring and be in the Straits in twenty minutes, and yet lying under the guns of the Rock the protection is complete. The zone of effective fire from the Rock is the widest of any fortress in the world, and any guns placed to search the Rock with its missiles would be well within its radius.

As a fortress Gibraltar has no equal, either in offensive or defensive strength. It is armed from water edge to summit with the largest and best of weapons. There are guns everywhere, but not one to be seen. All are hidden, sunk, galleried, casemented, or shut out of sight in some way. Using smokeless powder, it would be impossible to locate them, so as to make effective reply.

Formerly visitors were allowed to inspect the fortifications and ascend to all parts of the Rock; but this is now forbidden, and no one outside of the military authorities is supposed to know where the guns are mounted or how many there are.

The oldest and most interesting of the fortifications is the Moorish Castle, built by the Saracen invaders, and still standing in fairly good condition. What a story those walls could tell—war between Mohammedan and Christian; assaults of Cross or Crescent; whiskered Spaniards and turbaned Moors; spears, cimeters, bows, arrows, matchlocks, flintlocks, cannon; cries of Santiago, and Allah, Allah; shrieks of the stricken, cheers of victory, groans of the dying. Since its foundation stones were laid Empires have risen, flourished and perished, realms and races have passed, and the whole map of



Catalan Bay. East Side of Rock, a Small Fishing Village Inhabited Mostly by People from Genoa.
Shut Off from Gibraltar, the Town, from First Evening to Morning Gun Fire

Europe has been several times sponged out and relimned. Standing in its placid greyness, bearded with moss and lichen, it resembles some ancient seer, whose eyes, dimmed with age, look sadly upon the world of the present as well as the world of the past.

Like the Rock it is founded upon it stands to-day for peace, and under its ancient shadow move the bold and active people whose empire spans the world. A people who know how to govern, because they know how to obey. A people whose language and laws will one day be spoken and obeyed by all races of earth. Nothing can stop their onward march; they are sweeping forward like a great tide swollen to fullness by the pressure of an innate genius. Despite the imbecilities of their Governments, the Anglo-Saxon race must succeed. Centuries of timidity and venality may check and hamper, but can't undo the work of the great captains who, seizing opportunity to spread the empire, spread it without debating the ethics or weighing the cost of such conquest.

The Cromwells, the Richelieus, the Pitts, the Washingtons, the Lincolns, the Beaconsfields—stir, arouse.

put in motion, floods, that the timidity, imbecility and hypocrisy of the Jeffersons, the Castelreaghs, the Gladstone may momentarily trouble but cannot dam or divert from their sweeping, onward course. Such is the flood of Empire lifting and swelling, a mighty wave of racial impulse, overwhelming, engulfing all lesser streams. Sweeping onward it overspreads and obliterates the ancient boundaries of power, law, speech, until its primal impulse exhausted spreads, calms and rests, oceaned in universal acceptance.

Gibraltar stands for empire. Its very name rings with the imperial march of these restless, conquering people. A thought of it is inseparable from a thought of war and of conquest. It wakes to the call of the bugle and sleeps to the crack of gun. Its streets rally to the shrill fife and the stormy roll of the drum. But look, where deeply cut in the stone of yon ancient tower the Moor has left this legend, a legend that reads like a benediction:

"To the God that pacifies, and to the God that lasts forever."



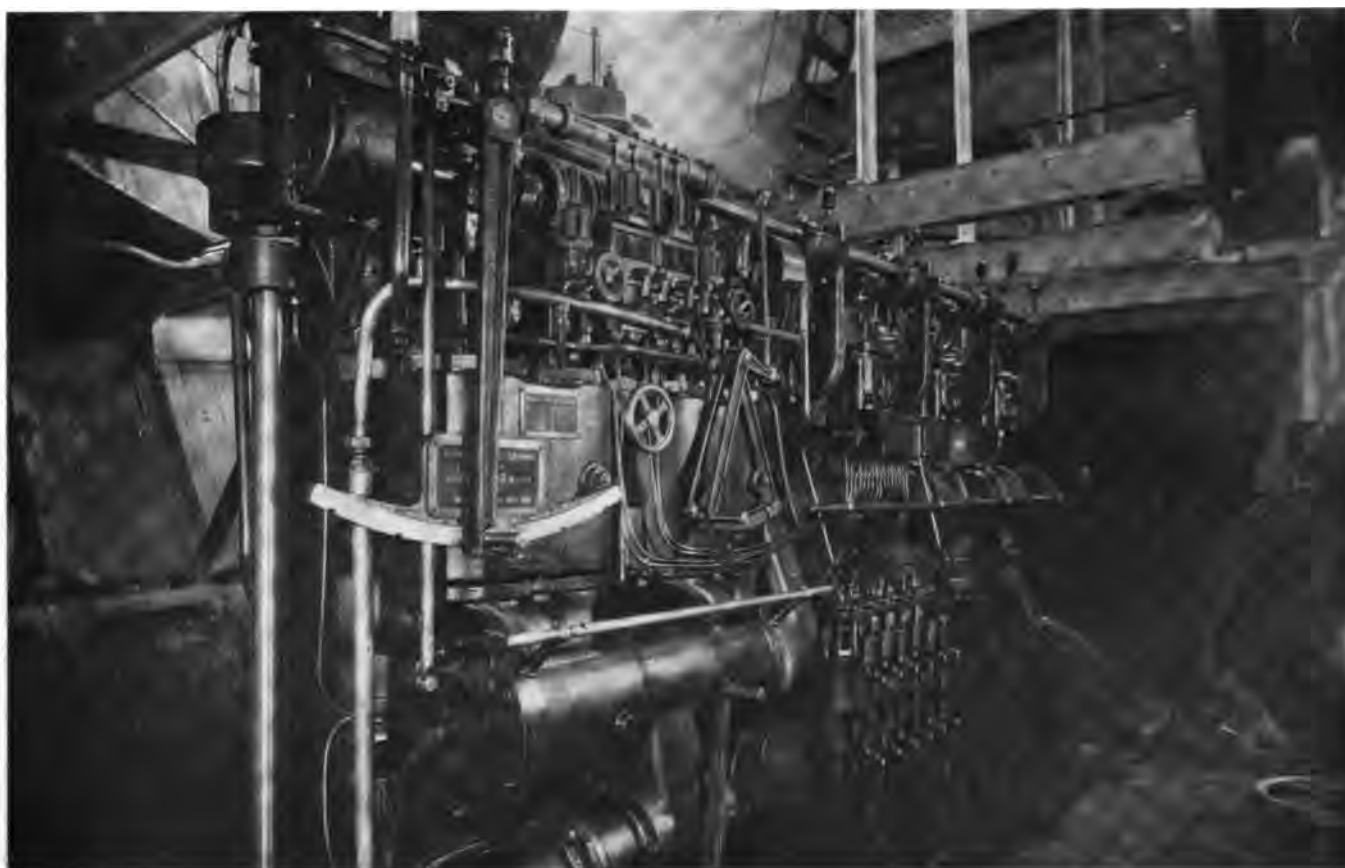
Sound of Jura, a 2,000-Ton Auxiliary Whaler Equipped with a 260-H.P Polar-Dieser Engine

AUXILIARY WHALERS

J. Rendell Wilson

THE success that has attended various Continental Diesel-engined ships has caused British shipowners to give, of late, really serious thought to the subject, and the launching of *Toiler*, by Messrs. Swan, Hunter & Wigham Richardson, of Newcastle-on-Tyne, has now been followed by the completion of a small fleet of power vessels of this class at the yard of Messrs. Smith's Dock of North Shields, and comprises one 2,000-ton auxiliary Company, Middlesborough. The fleet, which is intended for the whaling industry in Antarctic waters, was constructed for The Southern Whaling & Sealing Company of North Shields, and comprises one 2,000-ton auxiliary and two fully-powered 92-foot whalers. The larger vessel, I understand, will be the parent ship to the smaller craft, returning at frequent intervals to port with the proceeds of the catches, and for food and fuel supplies, while the two whalers remain at work. Curiously enough all three vessels have been engined by the Aktiebolaget Diesels Motorer, of Stockholm, who were the constructors of the Polar-Diesel machinery of *Toiler*, the only other large English-built crude-oil engined ship of this class yet afloat. In a way, of course, it is a pity that the vessels are not entirely British or American; but no firm

in these countries, it is to be regretted, could supply a marine Diesel engine of the required power and type for many months to come, although many are now actively engaged. However, the Polar-Diesel engines will no doubt give satisfaction, as they have already proved their worth in about a dozen big ships including the *Fram*, which is now engaged in the Amundsen South-Polar exploration expedition, that it will be remembered recently "stole a march" on Captain Scott's party. The *Sound of Jura*, the largest of the new fleet, is not, like the others, newly built, but was launched in 1906. Originally a sailing vessel she has, however, just been overhauled throughout, and has been installed with a 260-h.p. Polar-Diesel engine as auxiliary power. She is 210 feet 3 inches in length, by 35 feet 6 inches breadth of beam, with 19 feet 5 inches draught, and is a four-masted barque built of steel. Her engine is of the two-stroke type, with four working, and two maneuvering cylinders, while the power is developed at 250 revolutions per minute. She already has passed her trials and has just left for Southern waters. The illustration shows her en route under power, making excellent head-way in moderate weather, against a good wind.



260-H.P. Polar-Diesel Engine Installed in the Barque *Sound of Jura*

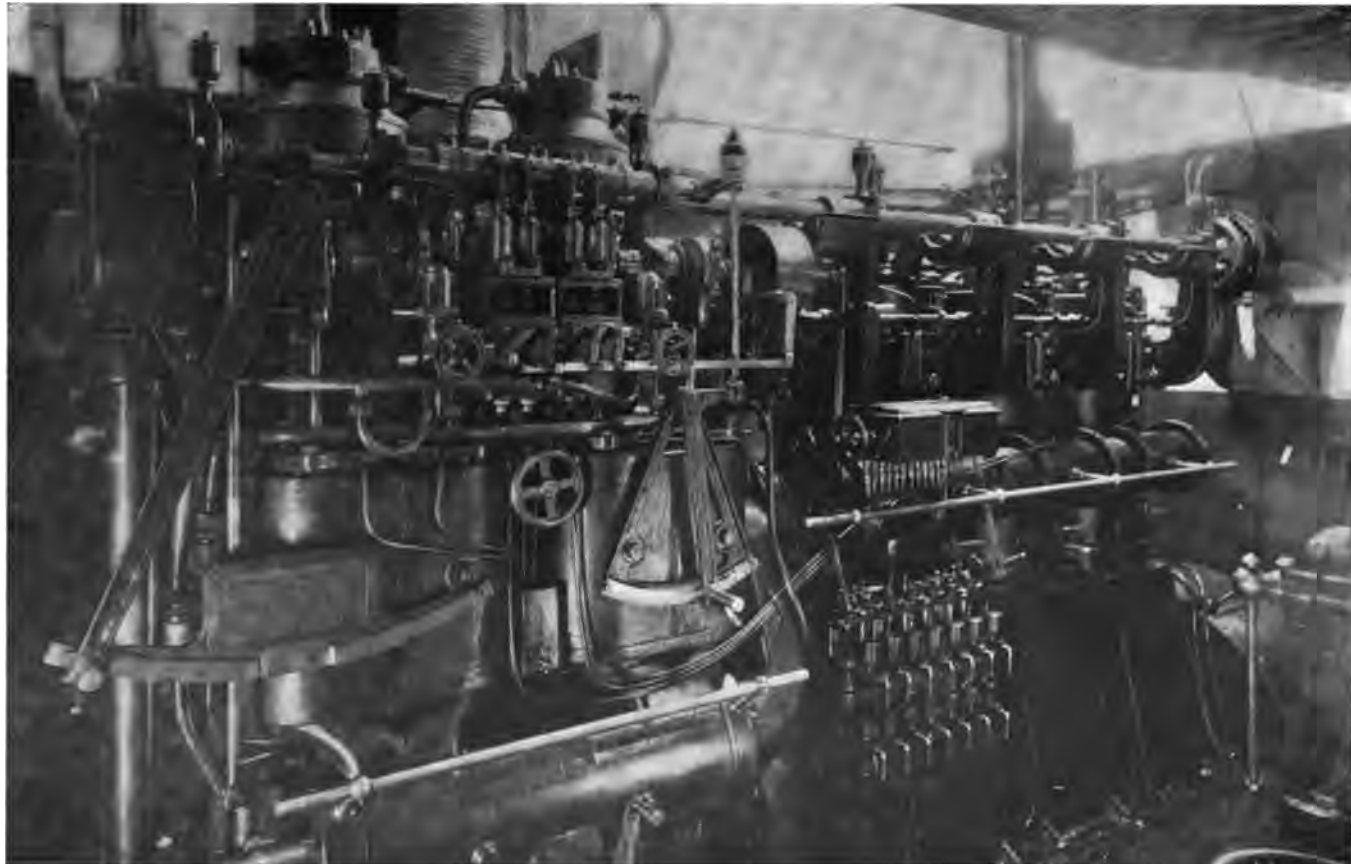
Photos by Wm. Parry & Son

The two whalers are 92 feet long, by 18 feet breadth of beam and 6 feet 10 inches draught, classed by the British Corporation, and each is equipped with a four-cylinder (working) 200-h.p. Polar-Diesel engine, running at 280 r.p.m. I have before me a copy of the test report on one of these engines made by Mr. G. Bremberg, surveyor to the British Corporation Registry, from which I give extracts. After several hours' continuous run, a fuel consumption test was made with the engine under full load for 30 minutes. At 282 r.p.m. the effective b.h.p. was 200 with a mean net load of 142 kgm., and the fuel consumption for the half-hour was 19,600 gr. The brakes used in the tests were supplied by Messrs. Heeman & Froude, Ltd., of Manchester. Another test was made, lasting ten minutes, to obtain the maximum effective power, and 222-h.p. was obtained with the engine running at 292 r.p.m., on a net load of 152 kgm. Afterwards very satisfactory trials were made of starting, stopping and reversing. The exhaust gases were quite colorless, and the working of the engine was very regular, while there were no signs of overheated bearings. Regarding the 260-h.p. engine installed in Sound of Jura, of which an illustration is also given, a few details will probably be of interest. As before mentioned there are four-working, and two maneuvering, cylinders: the two forward cylinders (left hand side of illus.) being the maneuvering, and are used for starting, stopping, reversing and for air compressing. By this it will be seen that each working cylinder develops 65-h.p. All cranks are set at 90° so that there can be no dead center. The maneuvering cylinder is double-acting and contains a compressor, which keeps a storage tank charged with air at a pressure of 150 lb per square inch;

this air being used for starting the engine, and is admitted to the cylinders through valves in the maneuvering cylinder heads. By adopting this arrangement there is no necessity to temporarily shut off the fuel supply to the working cylinders, and they thus pick up the load very quickly. The second maneuvering cylinder is double-acting, and contains a two-stage air compressor. The compressors also supply air at 5 lb per square inch for scavenging the working cylinders at the bottom of each stroke, the engine working, as before stated, on the two-stroke principle. In addition to cooling the cylinder and piston-top the scavenging air leaves the combustion chamber clear of exhaust gases.

The fuel injection valve is located on the cylinder head and is actuated by a rocker arm worked off an overhead cam-shaft, which is driven by a vertical shaft and gearing at the forward end off the crank-shaft. Each of the fuel valves is supplied by its own pump, and is adjustable. When the exhaust is dirty, which can be discovered by opening a cock on the exhaust branch, the fuel supply is reduced until the right amount is being consumed. Reversing is practically instantaneous and is carried out by shifting the cams that control the air injection valves, at the same time automatically shutting off the fuel supply for a moment. The maneuvering cylinders then come into action and are used until the working cylinders take up the load in the reverse direction. So it will be seen that backfiring is almost an impossibility.

An important feature with engines of the Diesel variety is the low lubricating-oil consumption, as any excess is apt to burn and clog the piston rings, while it will also clog the compressor valves. With this engine, all that is necessary is one drop of oil about every ten



200-H.P. Polar-Diesel Installed in the 92-Foot Whalers Built for Use in the Antarctic

minutes to each bearing, etc. The sight-feed lubricators provided, can be seen grouped on the crank-case in the center of the engine, with a small feed tank above. The group on the upper part of the maneuvering cylinders are the four fuel pumps, and the small feed pipes can be traced to each cylinder. Above the unions can be seen the small feed adjusting screw referred to previously.

Fuel consumption is very economical, being about .45 lb to .5 lb per horse-power per hour, which is almost as low as yet obtained by any four-stroke type Diesel engine. Messrs. Swan, Hunter & Wigham Richardson are now constructing a 400-h.p. marine engine on this design.

While engaged on this article, readers may be interested to learn that I have just received a letter from the famous German engineering firm of Fried Krupp of Kiel-Gaarden, stating that in addition to other large marine oil engines under construction, they have four six-cylinder engines, each developing 1,150-h.p. at 140 r.p.m. and two six-cylinder engines of 1,750-h.p. each at 125 r.p.m. These six big engines, aggregating 8,100-h.p., will be fitted in three vessels owned by the Deutsch-Amerikanische Petroleumgesellschaft. In addition they are building eight 850-h.p. engines, and two of 600-h.p. apiece, as well as a large number under 500-h.p.



A NEW RATING FORMULA

Professor Karl Ljungberg

THE experiences gained during the power-boat races of last Summer have proved that the rating formula proposed and used by the Royal Swedish Automobile Club (Kungl. Automobil Klubben)

$$R = 2 \left(\frac{N \cdot L}{D} \right)^{0.3} \times \left(\frac{L}{B} \right)^{0.2}$$

is very well applicable to the types of boats which it was really intended for, that is, heavy, seagoing boats, and in this respect it has proved itself to be superior to the International Rule,

$$R = 2.2 \sqrt[3]{\frac{N}{A}} \sqrt{\frac{L_1}{B_1}},$$

but it has not turned out so well for lighter boats or boats with a comparatively small displacement in proportion to their horse-power. At the last race, for instance, the real speed of the four heavy boats, Ingar, Penta, Alba and Standard, deviated only with about one-tenth of a knot from the speed calculated according to the formula, whereas the real speed of some lighter boats deviated with more than one knot from the calculated speed, which plainly shows that a correction is needed.

Our previous rating formulas are all based on the old formula of resistance, or that this is proportional to the cubic root of the horse-power divided by the area of midship section, and the corrections which have been made later on have only consisted in the adding of the

$\frac{L}{B}$ factor — and the changing of the exponent of the horse-power from $\frac{1}{3}$ to 0.3.

This is not sufficient, however, as it appears that the resistance at a certain speed is not proportional to the area of midship section, but that the absolute size of this area also has some influence, a larger area of midship section offering comparatively less resistance than a smaller one.

What we are aiming at with our rating formula is to make the rating correspond as closely as possible to the real speed of the boat, and this being the case it is obvious that if there was a good and simple formula for the calculation of resistance or speed, this formula could be used as a rating formula as well. Most formulas for the calculation of resistance are, however, so complicated that one is not encouraged to use them for this purpose.

Resistance formulas generally distinguish between two kinds of resistance, that is, form resistance and frictional resistance. For calculating the former one has generally taken for granted that a surface forming a certain angle with the direction of speed offers a resistance equal to the surface multiplied by a power for sinus of the corresponding angle. The calculation of resistance is consequently in these formulas treated as a shock problem, but it is not taken into consideration that a part of a spherical surface never offers the same amount of resistance as would an equally large part if it were free. Calculations of resistance should be treated as problems of movement if they are to be settled in an exact manner.

If one assumes a plane moving at right angles to itself, the particles of water, in order to get past the plane, will be obliged to make a side movement, which represents a change of speed of the particles and an increase of pressure in front of the plane. Afterwards when the particles are to close in behind the plane the change of speed will be of a nature to occasion a decrease of pressure behind the plane. It is the sum of this increase and decrease of pressure which represents the resistance.

If two planes of the same form but of different sizes were driven through a fluid without friction everything goes to prove that the courses which the particles of fluid will have to traverse will be identical in both cases, and that consequently increase and decrease of pressure, per unit of surface, will also be equal in both cases, which indicates that resistance is proportional to the sizes of the surfaces.

If, on the other hand, the fluid is not free from friction there will be an obstacle in the movement partly along the outline of the plane and partly between layers of fluid having a different speed. This obstacle depends, however, more on the size of the outline than on the size of the plane. Even this obstacle causes an increase and decrease of pressure respectively, which is not, however, proportional to the sizes of the planes but rather to the sizes of the outlines. A smaller surface, having, however, comparatively larger outlines, in proportion to its size, than a larger surface, it is evident that the smaller surface, counting per unit of surface, offers more resistance than the larger one.

The same holds good if, instead of driving two plane surfaces through a fluid, two bodies of the same form

are being driven through it, which is also confirmed by the experiences gained during our races.

Taking this into consideration, it is evident that the area of midship sections must enter into the denominator with a smaller exponent than the horse-power in the numerator. With the explanation previously given last year's Racing Committee of the Kungl. Automobil Klubben, I think all the same that the area of midship section ought to be exchanged for the displacement divided by the length, the coefficient of fineness of our boats being about equal, and even if it differs somewhat the rating of the resistance will be more just if this exchange is made, as it is evident that, of two boats having the same area of midship section but different coefficients of fineness, the one with the larger coefficient of fineness will offer more resistance and consequently attain a minor speed, a fact which will be taken into consideration if the displacement enters into the formula instead of the area of midship section. In addition to this there are some practical reasons advocating the exchange in question, the determination of a displacement by means of weighing being both easier and cheaper to execute and giving a greater accuracy than the measuring and controlling of an area of midship section.

Regarding the exponents which are to be used, these cannot be determined theoretically, there being no exact theories for the calculation of resistance. In this case one is left to figures obtained by way of experiments.

As regards the exponent of the horse-power I have proposed 0.3 or used the same value with which it enters into the rating formula used during the present year by the Kungl. Automobil Klubben, and consider myself having a good reason for so doing in the results obtained from this year's races. It is true that propositions have been made to reduce the exponent to 0.25 or even 0.2, but according to what has been shown in the article "Rating of motorboats" in No. 17 of the Svensk Motortidning, the race of Karlskrona-Stockholm does not support this view but strengthens, on the contrary, the correctness of 0.3 as an exponent.

On the other hand it is true that, according to tests made by some navies, an exponent of 0.25 ought to be preferred, but it should be noticed that these experiments are made only by reducing the number of revolutions of the machine while keeping the same propeller and thus producing different indicated effects. From the different speeds obtained in this manner one has drawn the conclusion that the speed is proportional to the amount of power with an exponent of 0.25. Experiments of this kind have, however, no bearing on the problem at hand, as this is a case of using different propellers for different speeds, and it is only under the presumption of the very best propeller being used for each speed, that the speed according to the formula is proportional to the horse-power with an exponent of 0.3.

The formula I propose is the following:

$$R = 2.5 \frac{N^{0.3} L^{0.28}}{D^{0.24}}$$

As will be seen the area of midship section or $\frac{D}{L}$ enters

into the formula with an exponent of 0.24 and also the length with an exponent of 0.04 in the numerator. The last addition is explained by the fact that a longer boat having a larger displacement always has sharper lines and thus offers less resistance.

As mentioned above the determination of the expo-

nents is based on experiences gained from a number of power boats and they have also been tested by applying them to steamers of the most different sizes, and the formula has thus given such good figures of speed that it can be used for calculating the speed of most boats, at least for those the prow of which does not rise out of the water under the influence of a great speed, as is the case, for instance, with several racers.

Another support for the coefficients proposed may be found in the fact that the relation between the horse-power and the displacement in this formula is the same which we have obtained in another way when drawing up rules some years ago for the classification of cruisers in relation to their horse-power. It was then decided that if a cruiser was to be counted to group A its power should be $\leq 10 \times D^{0.8}$. The horse-power is consequently here equal to a constant multiplied by $D^{0.8}$. In the rating formula the power enters with an exponent of 0.3 and the displacement with an exponent of 0.24, the same proportion consequently as in the formula mentioned above.

Below is a list of boats to which I have applied the new rating formula. In some cases I have also given the ratings at my disposal from the September race of the Royal Swedish Automobile Club:

| Boat | Over-All Length | Breadth in the Load Water Line | Displacement | Horse-Power | $R = 2.5 \left(\frac{N L}{D} \right)^{0.3} \left(\frac{L}{B} \right)^{0.2}$ | $R = 2.5 \frac{N^{0.3} \times L^{0.28}}{D^{0.24}}$ | Real Speed (Attained on Trials) |
|--------------------|-----------------|--------------------------------|--------------|-------------|---|--|---------------------------------|
| Ingar | 14.06 | 2.61 | 9.14 | 33.4 | 9.1 | 9.19 | 9.3 |
| Alba | 15.00 | 2.61 | 7.42 | 25.3 | 9.2 | 9.04 | 9.2 |
| Penta IV | 15.00 | 2.72 | 8.41 | 28.3 | 9.1 | 9.07 | 9.2 |
| Standard | 14.06 | 2.64 | 7.29 | 32.1 | 9.9 | 9.75 | 9.7 |
| Kärsa | 10.00 | 1.72 | 2.16 | 12.2 | 9.5 | 8.72 | 8.5 |
| Käthi | 10.00 | 2.00 | 2.32 | 11.6 | 8.9 | 8.45 | 8.3 |
| Gummacita | 13.10 | 1.85 | 3.50 | 36.6 | 12.9 | 11.66 | 11.4 |
| Scripps | 7.22 | 1.12 | 0.84 | 8.7 | 10.6 | 9.02 | 9.0 |
| Büssing IV | 8:55 | 1.68 | 1.65 | 17.8 | 10.8 | 9.97 | 10.0 |
| Bolinder VIII | 23.00 | 3.30 | 27.40 | 118.0 | 11.7 | 11.7 | 11.7 |
| Baltzar | 14.57 | — | 6.76 | 18.2 | — | 8.32 | 8.5 |
| Bergsund | 15.56 | — | 10.77 | 72.0 | — | 11.43 | 11.5 |
| Fröja | 10.09 | 1.62 | 2.31 | 12.9 | 9.7 | 8.75 | 8.6 |
| Hermes | 14.05 | — | 5.20 | 24.6 | — | 9.59 | 9.7 |
| Ellen | 8.00 | 1.59 | 1.56 | 6.0 | 7.7 | 7.16 | — |
| Margit | 7.76 | 1.49 | 1.34 | 6.9 | 8.4 | 7.68 | — |
| Sjöexpress V | 8.06 | 1.60 | 1.22 | 5.8 | 8.3 | 7.71 | — |
| Togo | 9.25 | 1.49 | 1.29 | 4.0 | 7.9 | 6.94 | 7.0 |
| Avance | 13.30 | 2.26 | 6.89 | 26.2 | — | 9.00 | 9.0 |
| Elsa | 14.00 | — | 5.83 | 26.8 | — | 9.69 | 9.8 |
| Scania | 14.86 | — | 8.02 | 22.9 | — | 8.60 | — |
| Tärnan | 14.99 | — | 7.89 | 37.6 | — | 10.04 | — |
| Tatiana | 18.10 | — | 23.32 | 60.7 | — | 9.38 | — |
| White Horse | 12.43 | 2.81 | 8.42 | 19.1 | — | 7.65 | — |
| Trifs | 10.40 | 2.05 | 2.90 | 14.7 | 9.1 | 8.69 | 8.0 |
| Barbarossa | 11.56 | 1.97 | 3.43 | 20.9 | 10.2 | 9.56 | — |
| Sven | 11.00 | 1.86 | 3.41 | 26.4 | 10.8 | 10.12 | — |
| Buffalo | 10.09 | 1.65 | 2.50 | 23.9 | 11.3 | 10.33 | — |
| Skoghern | 14.00 | — | 4.20 | 35.0 | — | 11.20 | 11.3 |
| Obe | 13.50 | — | 4.50 | 22.8 | — | 9.70 | 9.8 |
| Jagaren Vidar | 65.80 | 6.34 | 350.00 | 8,838.0 | — | 31.50 | 31.13 |
| Anglustjakt | 21.80 | — | 45.37 | 105.0 | — | 9.97 | 10.20 |
| Skärgårdsångare | 33.25 | — | 163.00 | 353.0 | — | 11.87 | 12.16 |
| Isbryt. bogserbat. | 16.15 | — | 42.62 | 105.0 | — | 9.30 | 9.10 |
| Lastångare | 64.00 | — | 1,110.00 | 603.0 | — | 10.56 | 10.68 |

In a coming number of this paper I shall make a demonstration of a graphical table, by the aid of which the corresponding rating can be immediately found, if N, L and D are known.

ACROSS THE ATLANTIC IN SEA BIRD

PART V

LET us leave Sea Bird hove to off the mole at Gibraltar waiting for the Port Doctor to come off and give her pratique, and take a run back over the ocean passage and see what we can glean that will be of interest and value to future small craft voyagers. In the hurry of getting across we overran or passed to one side or the other many things which we intended to notice and which I know will not only add to the interest of the narrative, but will be of value to all yachtsmen who are anxious to acquire a broad and solid knowledge of our sport. The practice of ocean sailing is bound to grow, and to become one of the main attractions of the pastime, and to add much to its pleasures and glories. Ten years ago, except for a single votary ported here or there in the world, who with pluck and skill navigated the open sea, ocean sailing and ocean racing by small yachts was unheard-of sport, and was universally considered a dangerous and crack-brained amusement. To-day it is practiced in all countries where good yachts and wide waters are to be had. Men under its stimulus have largely lost that unfounded fear of the sea, and venture with alacrity and pleasure on deep water, voyaging for hundreds of miles out of sight of land with the same confidence with which a few years ago they navigated a bay or sound or stretched from cape to cape. This ocean racing and cruising has given a new birth to the sport, it has enormously broadened its field, caused the designing and construction of better boats, and developed a body of skilled and daring amateur mariners such as the world has never hitherto seen. In this new departure the American Yachtsman lead and it has not alone placed their division of the sport in the van, but has led to the adoption of the American type of boat in all parts of the world. It is the proud boast of THE RUDDER that it inaugurated, advocated and developed ocean racing and cruising, and through it, saved and regenerated the sport. Wherever the clubs have taken hold of the new sport yachting has flourished; where they have failed to do so it's languished and fallen into decline. In return for its twenty years of activity and zeal in behalf of the sport, THE RUDDER has received from yachtsmen a half-hearted and miserly support, that has curtailed its efforts, and prevented its extending the propaganda as it might have done had yachtsmen generously and consistently maintained the magazine.

But let us back to our voyage. Four small craft essayed to cross the Western Ocean this Summer; of these three were lost, and Bird, the smallest, made the passage without a scratch or strain. Of the three one was wrecked on the shore of Nova Scotia, one fell apart, and the third was never heard from after leaving New York. The first of these was a 50-foot power boat, and if the completed boat was anything like the model shown at Madison Square Garden, she was entirely unsuited for making such a passage. The man in charge of the model, whom I understand was to command her, had very little knowledge of navigation, and none whatever of the character and conditions of the Western Ocean. The track, which he informed me in the course of a con-

versation, he intended to take was the one of all others which no vessel bound to the East should essay to follow, as it presents for at least 1,500 miles a constant, head current and more head than fair wind. I predicted at the time the vessel would come to grief, and regret to chronicle that my prediction proved true.

The second of these vessels was an old sloop yacht, fitted with an engine and which had been used for several years as a fishing boat. She was called Theresa, and was of about 50 feet over all, a very wide, comparatively shallow hull of the old centerboard type of forty years ago. This boat was in wretched condition, badly found, and poorly canvased, and manned by three Portuguese fishermen who intended taking her to the Cape Verde Islands. What sense there was in taking a rotten hull, whose life even in smooth water was extremely limited, that distance, is something beyond my comprehension. She sailed from Providence the same day Bird did, but we rapidly distanced her, and were in Gibraltar when she fell apart and sank Southwest of the island of St. Michaels, one of the Azores. Her crew was picked off by a British steamer, whose skipper has recently been presented by the United States Government with a chronometer for the rescue. In the report of the wreck made to the Collector of the Port of Providence, the Master of Theresa blames the disaster to bad weather, asserting that they had continuous gales of wind. Such statements are nonsense, no one ever saw continuous gales on the Western Ocean in June or July, and being in our wake they had the same or better weather than we had, and we had only one gale of wind, and that lasted but forty-eight hours, even though part of the time we were running it.

The loss of Theresa was due solely to the fact that the boat was old and rotten, and had no business to be offshore. It is a crime to lay the blame of such on Providence; such disasters are not Acts of God, they are wholly and solely due to the ignorance, recklessness or cupidity of man.

The third boat is one of those mysteries of which ocean history can supply a long tally, a vessel able, well-manned, and equipped, that disappears without leaving a trace. Pandora, a boat built in West Australia by my old friend Captain Blyth, after the lines of the famous Spray, and sailed by him and a companion across the Southern Ocean around the Horn, up through the South Atlantic to New York, left the latter port July 22, 1911, and has never been heard from since. I did not see Pandora when she was in New York, but a friend told me that she was leaking, and he suspected that during her long cruise from Australia her plank and timbers had become worm-eaten; such a condition would account for her loss.

But at the bottom of all was no doubt an overconfidence. After the long voyage around the Horn, the 3,000 odd miles from New York to Falmouth would seem like a flea-bite, and precautions taken at the beginning, either through carelessness or contempt of danger

be neglected with the trip so nearly completed. Again Blyth had a habit of allowing the vessel to sail herself at night as well as day, with all hands below sleeping. Such a practice might be followed with impunity in the South Seas or South Atlantic, where the winds are constant and the weather changes gradual, and where vessels are few and far between, but should never be attempted in the Western Ocean, the most treacherous and stormiest sea, as well as the most thickly vessel-haunted.

Sudden changes of wind in the Western Ocean can never be foretold even by the most experienced and can only be guarded against by constant vigilance. The squalls experienced in the Gulf Stream, which the Bird weathered under bare poles, would have capsized or torn to pieces the above-deck habiliments of any vessel, if she was caught under standing canvas. The price of safety at sea is constant vigilance, the product of an alert and active mind.

No matter what caused the loss of Pandora, she is lost, and while we do not know what the direct cause was, the primal cause was overconfidence, and neglect of those duties which are inseparable from safe and sane navigating. I extremely regret these disasters, because they give encouragement to those men who without knowledge or experience of ocean sailing are loud in their denunciation of it as a dangerous and foolhardy pastime. These people never stop to consider the difference between a well-designed, strongly built, fully equipped, manned, and stored yacht, and a make-shift craft designed and built in the cheapest possible manner by a man whose pockets are nearly empty and whose credit is a vacuum. When this boat is finished, she is rigged and canvased with odds and ends, stored with gift food, and then navigated by a person who has no proper instruments and very little knowledge of the best way of piloting across deep water.

It was always a source of wonder to those who closely and intelligently examined Spray that she lasted as long as she did, and stood the ocean battering without going to pieces. But strange as it may seem boats in such decayed condition that it is not safe to touch their plank or frame with a tool, will make long voyages, seemingly like the One-Hoss Shay waiting patiently to go to pieces all over at once.

If there is anything more ridiculous than the fear of the sea it is the belief held by some people that a successful voyage of this kind is only possible through a miraculous interposition of Divine Power. I do not believe there ever was a miracle or ever will be, and if there was it is extremely absurd and conceited to suppose that Providence should have chosen the Bird and her crew and interfered with natural laws simply to insure their safety. The belief in miraculous interference which strongly possesses the human mind, is a gift from Pagan times, when men like Mr. Pope's Indian saw the Great Spirit everywhere, and constantly pictured him as intermeddling with their daily affairs. To this interference they laid either success or failure. The mob ascribed a great leader's success to the favor of the gods; if beaten the great leader ascribed his defeat to the god's antipathy or want of interest in his fortunes. Nations to-day resort to the same nonsensical reasoning to account for their successes and defeats. It is ridiculous to suppose that the great Moving Power of the Universe so deeply meddles with the small affairs of Earth as to alter the direction of the wind or set of the currents, or stills the

waves, or does other equally absurd things to aid the passage of a small boat. If the sun rose an hour before its time so as to enable me to see and escape a dangerous coast, or if, in a boat full of water I was enabled to make good weather of a gale, I would believe in Divine interference and miracles, but at present my inheritance of Paganism is too scant to allow of the acceptance of such childish and nonsensical beliefs. Again what absurd conceit for a man to put himself forward as being an especial object of the care of Providence. Why should the Supreme Power be more interested in Bird, than in Theresa or Pandora? It is like that monstrous doctrine of Calvinism by which the members of that sect picture themselves as the elect.

No man can step before me in true reverence for the Great Power that controls and directs the Universe. I love to contemplate the beautiful and logical expressions and expositions of the laws which possess and regulate the execution of all movements and changes; I endeavor to comprehend the meaning and purposes of Nature as expressed in those countless and astonishing combinations which produce and sustain what we call life; I reach out to the very boundaries of the infinite in endeavoring to grasp and understand the sources of this splendid control, and approach the Master Mind demanding a reply, not as a supplicant or servant, but as one, who equally sharing the universal labors and glories of existence, has a right to ask and a right to know.

That Nature does interfere in the affairs of man I do not deny, but she interferes in a purely logical and sane way. Her miracles are performed through the brain and arm of those great Captains, who lead the forlorn and foolish nations out of the lands of bondage and toil. Such a miracle was performed when Moses captained the Israelites, when Wellington from Mt. St. Jean drove back and routed the veterans of Napoleon, when Lincoln seized the pen and freed ten million slaves.

I tell you this to account for my statement that the success of our voyage was not due to any miraculous interference of Providence, but to the vigilance and skill of the crew, to intelligent and complete preparation, and to the fact that the time chosen was that in which it is best to make the passage.

Another absurd belief seemingly widely spread is that men start to make venturesome voyages, just as John and Mary start out of a Sunday afternoon for a walk, not caring or possibly not knowing where they are going, and only anxious not to go so far as to be late getting back to supper. Don't you suppose that Vasco da Gama, Columbus and Magellan, spent months, aye, years, preparing their minds for making those daring voyages? Days upon days of search, nights upon nights of thought. Before they threw their vessel's canvases to the wind, their restless, active minds had leaped ahead and pictured the voyage with all difficulties, dangers, distresses, and culminating success and glories.

Do you suppose that Alexander invaded Asia Minor, or Sir Arthur Wellesley, Portugal, without first sending out the mind in advance to plan and map out the campaign, and work all the possible ramifications and contradictions of persistent warfare? Men do not dare such things on the spur of the moment.

For years I have intended to make this passage across in a small boat, and would have accomplished it long ago but business reasons prevented my doing so. In preparation for this trip I made an especial study of the Western Ocean tracks, and so far as it is possible, was familiar

with the conditions to be expected in making such passage to any port of Western Europe between Cape Vincent and the Orkneys. Every book that I could find bearing on the subject was read, and I imagined and planned many voyages both in the air and on paper. In 1905 I had fully prepared to start, but the task of promoting and controlling the Bermuda Race came to my hands, and I was obliged to postpone the venture and look after that event. I am telling you this because a number of people in conversation and by letter have intimated that the making of the passage was a burst of recklessness, undertaken suddenly, without forethought or preparation.

But despite the utmost using of care and zeal it is impossible to wholly eliminate from human activities what the intelligent call fortune and the vulgar luck. It is many times the deciding factor, and has changed the front of more than one battle and by a sudden stroke put to nought the cleverest combinations of the cleverest men. But Fortune, as the ancients picture her, is a woman, and like all females she is more frequently to be found allied and suppliant to the active and brave than she is in the company of sluggish and timid. And she loves the advancing standard, and while at times variable and fickle, the stirring roll of the conqueror's drum will usually call her back to his eagles, when the fate of field lies within her gift.

In ocean voyaging and ocean racing fortune has sometimes much to do with success, but I have found by constant vigilance and skilful maneuvering you can oft-times anticipate her gifts, and thereby gain a double advantage over a slower and less lucky adversary. She will often by a happy deliverance save you from the calamities of an error, correcting a mistake of judgment by an unexpected, opportune shift of wind that changes your position from one of loss to one of advantage. But it does not do to solicit or depend upon her favors; he who asks she usually denies, and is at all times a capricious and unreliable party.

One of the difficult problems that face a man in command of a small vessel making such a voyage is the choice of a crew. He must not only have fearless, skilled men, but men who can stand discomforts and hardships without losing their tempers or giving way to despondency, and above all they must have perfect reliance on his knowledge and skill, and be willing to abide by his decisions and accept his judgments at all times. And they must keep their fears or differences to themselves, and not criticise the commander's actions or question his moves.

This gossiping and carping among crews is what has led to the fighting and failure of so many expeditions and exploring parties, and usually starts with one man. I have the same bother as I suppose every yacht skipper has with racing crews. The man who starts the trouble is invariably the most useless and ignorant of the crew. This criticism and carping is invariably born in ignorance. What at times may look to the crew of a vessel as a wrong or foolish move, may be so, if taken as a unit, but as a part of Commander's combination it may be eminently right and sane. You do not know what is in his mind, and cannot see as he sees the combination in all its phases; he is grasping and employing it as a whole, you are only looking at and comprehending a part, and that perhaps a very small one.

Nor do I think it advisable for a skipper to take his crew into his full confidence, and explain his complete

plan, because it is often necessary if not imperative to make changes which cannot be foreseen, and the making of these changes always shakes a crew's belief in a skipper's skill and judgment unless they can comprehend the necessity of the altered action. I make it a practice to tell a crew only so much as is necessary to an intelligent and zealous performance of their duty, or to keep them from growing despondent and careless by anticipating no success.

A crew of three such as we had on *Sea Bird* is the safest number, because it is too small to form a clique, and too large to be unsociable. My crew on *Bird*, in the first place had implicit confidence in their commander, and the second the same confidence in the activity and skill of each other, and the skipper had a farreaching confidence in their skill, pluck, and endurance. In consequence we three worked together like the wheels of a clock, and at no time was there jarring or rasping of metal.

They understood and were amenable to discipline, and comprehended that if things were to be run right they must be run in regular and orderly manner, and all hands making themselves subservient to the interests of the undertaking. Each man's duties were mapped out and never to my knowledge purposely neglected. Once they had their work mapped out I did not interfere, nor had I except once any cause to.

For this reason we can all look back at the voyage with unclouded pleasure, because instead of as such expeditions usually do, break up friendships, and make acquaintances enemies, it broadened and deepened the regard we had long entertained for each other and gave birth to deeper feeling which will widen and strengthen as long as life lasts.

Much of the success of a venture of this kind, or in fact of any expedition, depends upon the health and spirits of the crew, and health and spirits are more than anything else the result of regular and plentiful feeding. While it is sometimes impossible to regularly and largely feed men in land ventures, it is, except for a day or two of very bad weather, always possible at sea, as a sufficiency of stores can be carried without it imposing any burden on the feeders. Underfed or men fed at irregular intervals soon become cross and dissatisfied, and this leads to despondency and ill health. Nothing so conduces to success in a venture of this kind as a regular and unstinted diet of cooked food.

While men can and will live on prepared foods, they soon grow tired of them, and it is best to have a quantity and variety of uncooked food that can be readily prepared. Two of these things we carried in abundance and at all times relished—potatoes and rice.

The consumption of fluid is another problem, and if you can carry enough to allow your men a surfeit of this very necessary food so much the better. Men do not flourish any more than plants on a shortage of water. To help out the water supply, foods containing fluid are a great help, soups in particular supplying moisture as well as nourishment. Liquors or wines should be carried, but used in sparing quantities and only when undue labor or exposure calls for a dose of alcohol. At such a time a stimulant is exceedingly valuable. The chief dependence for warmth and nourishment is to be placed on cocoa, coffee and tea.

Bread is difficult to keep, especially bread baked in the United States, as our bakers employ a chemical to blow the bread up that destroys its keeping qualities. It grows

stale and hard in a few days or else rapidly molds. The bread we bought at the Azores, made of native flour, and unadulterated with chemicals, kept until the last crumb was eaten. Next trip I am going to get some home-made bread and try and preserve it by canning. Biscuits and crackers are well enough in their way, but they do not fill the office of bread.

Besides strongly and regularly feeding, great care should be taken to husband the strength of your crew, as much depends on that. The general who comes to the pitched field with an army worn out with long forced marches and meets a thoroughly rested and snappy opponent is very likely to be beaten. Give your men plenty of sleeping time and see that they go below and rest. Do not weary or annoy them with unnecessary work, and if possible do not break into their watch below, especially if they are sleeping. The necessity of calling the watch below can often be guarded against by reefing or shifting sails before the relieved watch turns in. In racing this is largely impossible, for a race is a continuous battle, to be fully contested from start to finish, and nothing can be spared if you are to win, but even in such a struggle much can be done by the skipper to reserve his crew's strength and still not jeopardize his chances.

Nor should the vessel that carries you be neglected, a constant surveillance is essential to safety and success. If the weather permits a daily inspection of sails, rigging and hull should be made, and any defects or weaknesses remedied at once. Do not allow your vigilance in this respect to be put to sleep by a spell of good weather, and absence of incident. Always have your arms prepared, then even the unexpected will find you ready to fight. In the '32 days of sailing between the American coast and Gibraltar we never parted a rope, tore a sail or strained a spar, because the rig was kept under constant surveillance and at all times in perfect working condition.

The weather in the Atlantic along the Fortieth parallel in June is never continuously bad; it has spells of nastiness, and we were unfortunate in striking one of these, and that right after the start. Had we been able to get to the South of the Stream, say into thirty-eight or thirty-eight thirty, we would have escaped the squalls and blows, but likely at the expense of making such rapid Easting. Persistent effort would have driven us South, but it meant a loss of a day or two, and even to escape bad weather it is not human to forfeit the opportunity of making a big run even if it means rough and rainy voyaging. South of the Stream we should have had light to moderate Southwest winds as far as Forty West and then the same as we had on our more Northerly track. What you want in making this passage is wind, steady, strong breezes, not the broken and blustery weather such as we had. This June was an exception and handed to us weather not at all according to the predictions of the learned authorities. Had we started a week earlier we would have had a much more favorable opportunity, as the weather did not break until about June 10th.

But so far as the weather is concerned June is the best month on the Western Ocean, and between the American coast and the Azores at that time of the year any well found yacht can make the passage with impunity; to the East of the islands a rowboat could navigate without danger.

As I told before, we reached from Nantucket Light-Vessel to Flores with the boom on the port side, and in

making the same passage at the same time of the year, it is possible that seven times out of ten you would do the same thing. It is very unlikely that you would encounter either Easterly or Northerly winds.

A fallacy which is widespread and has strong hold on yachtsmen as well as landsmen, is that vessels beat to windward in making long passages at sea. Much of the spread of this nonsense is due to publishing in yachting or boating papers tommy-rot written by men who have no knowledge or experience of ocean voyaging, and accepted and printed by editors who have, if possible, less. Because men see these statements in print they accept them without question, yet if they took the trouble to think they would at once recognize their fallacy and absurdity.

Vessels beat to windward along a coast, or up a bay or through a sound because it is impossible owing to the contracted area to do anything else, but in the open sea it would be an absurd waste of time, when by reaching or running you can make your destination sooner and much easier. A vessel at sea often stands on a wind in order to hold up into a favorable slant, and ships making the Western Ocean passage to the Westward alternately ratch on opposite boards, but they do so with the wind eight points off the bow, the mean of the course being a true Westerly gain.

I saw in one paper a statement that Sea Bird would be a long time on the passage because she would have to tack from the Azores to Gibraltar, and as *she was very slow sailing in the eye of the wind*, it would considerably delay her. With all due respect to writer allow me say that any vessel that sailed in the eye of the wind would not only be delayed but would travel stern first and would never reach her destination if it lay ahead.

This is just a sample of the nonsense that is written and printed about boats, and which, I regret is swallowed by many people who ought to have more sense than to accept it considering the source whence it comes.

Now in order to enlighten the interested let me explain by supposing that on leaving the Azores we had encountered a wind dead ahead, that is from East by South, what would we have done? To beat against such a blast for one thousand miles, even if a small boat like Bird could accomplish the feat, would take at least thirty days, and be a rough, and distressing task, entailing constant labor both on crew and boat.

Having caught the headwind, how are we to out-manuever it, so as to gain a weather position, and thus disarm its opposition? By performing what military men call a flank movement, we must direct our course so as to turn either its right or left flank.

Let us look at the chart. An inspection of the sea card shows us that to the South of our course, the prevailing winds are Westerly, to the North of it they are Easterly. Then we must head North making as much Easting as can be done and keep the vessel traveling her best until we reach into these Westerly winds. The wind being East by South we head a course Northeast by North, if the sea will allow, or North Northeast if the sea is too heavy for her to make speed close-hauled. Holding this course until we work into a favorable slant or pick up the coast, or gain a position far enough to the East that we can ratch to the South on the other tack.

But a navigator who understood his business when making the passage would never get his vessel into such a fix. For instance, if the prevailing winds were Easterly between the Azores and the Gut of Gibraltar, I should

never have held along the Fortieth parallel, but have sought a track either North or South where they were more favorable. But knowing that for nine months of the year a constant Northerly wind passes between the islands and the coast on that parallel, I chose that track. The choice of tracks is where the art of deep-water navigating begins, and for that reason a comprehensive and exact knowledge of the winds and currents of an ocean are essential to a skilful display of the art. But genius begins where rules end, and only one who is a born pilot, can break from the bondage of the chart, and relying upon that intuitive knowledge which is an instinct, anticipate and turn to splendid advantage the vagaries of the wind and the caprices of the current.

One thing that made life easier was the three watches. This was my first experience with three watches on a long trip, and it worked successfully. The only drawback is, with only one man in a watch it means a four-hour trick, and this with a hard helming craft would be tough and tiring work. With a two-shift watch a man cannot obtain a proper sleep. He invariably loses a quarter of an hour at the start, and as one bell is either a quarter or ten before, he gets only three and one-half hours of sleep at a stretch and is waked up half satisfied. The three-watch plan gives him at least seven clean hours below, and a long sleep from which he usually awakes himself satiated and satisfied with slumber. Knowing you have an eight-hour spell below, you do not so much mind the four-hour trick at the helm. With two men in watch, it would be like making candy in somebody's kitchen. During the whole passage there were only two or three days when we did not get our full back of sleep, and that was due to the weather necessitating two men being on deck all the time.

The three-watch plan gives you the same two watches each day; in some ways this is an advantage and in others not. At the time of year we went across, it gave two men each a night watch, while the third had both during the daylight. Sixteen hours of play and sleep leaves much loose time on your hands, and a job or two around decks helps to pass the hours away. My crew spent some of their below time working up navigation, and before the voyage was over became quite expert.

But let us hark back for a spell to the Bird, and get her safely docked at Gibraltar. The Doctor's boat came off promptly, a small steam launch, and that official after receiving our papers, and asking a few questions about the voyage, gave us pratique, and instructions where to go in and anchor. He said they knew we were coming and were being looked for by the newspaper correspondents.

A couple of rowboats hovered alongside waiting until we were free and they pounced down upon us like a pirate gull on a loon. They were the galleys of those nuisances, the shipchandlers, who infest all European ports, especially ports of call like Gibraltar. They never seem to learn that by such conduct they lose more business than they gain. One of those fellows was the biggest wind-bag I ever ran athwart hawse, and after ten minutes in his company his murder would have brought me exceeding pleasure. He had a book of letters given him by different American yacht masters, in which he was stated to be an honest and reliable man. These he thrust repeatedly under my nose with wild clamors to read. His friend of the opposition at the same time loudly proclaiming that the testimonials had been secured by fraud, and that his (the opposition) firm was the only

honest one in the town, and the only one that was patronized by American yachtsmen.

To a man tired out with a long voyage and only anxious for quiet and rest this annoyance is very likely to lead to agreeable and satisfactory business connections. Amid this fiendish clamor and squabbling we started up the engine and rounding the mole end, entered the commercial harbor, and endeavored to anchor but owing to the weed, the hook would not hold, so we went in and tied up alongside the quay. Here a crowd gathered to inspect us and the boat.

The two chandler runners were still at it, first imploring me to recognize their claims as being first to reach me, and then attacking and abusing each other. If all they said was true, the course of justice on the Rock must indeed move with leaden feet, for the only crimes not mentioned in their diatribe were incest and mayhem. Probably they have since committed these.

They accompanied me on a visit to the port office, one on each side, quarreling like a couple of curs, until at last, with curses, I bade them begone; but they still clung to me, and returned to the dock, where in order to get rid of them we hauled out into the bay and made fast astern a lighter. Here a gentleman came off in a boat, and very kindly loaned us his boat-boy to take charge of Bird, and going ashore we received our tickets from the police, and under guidance of a newspaper correspondent, found refuge and rest at the Continental Hotel.

On arrival, I cabled the Touring Club of Italy that we had arrived in Gib. and requested instructions as to when they wanted us at Rome. Word came back that they wanted us to join cruise at Naples, the 22d, or Fiumicino, the 23d. This early day was due to their having dropped out several stopping ports on the cruise from Venice. I knew at once it was impossible for Bird to make the passage of over a thousand miles to Rome in six days, even with a strong fair wind and a full load of fuel. Strong winds are something not to be had in the Mediterranean in the Summer, and what was to be obtained was mostly Easterly. Our only chance was to get aboard a steamer and steam to Naples as soon as possible. The Moltke of the Hamburg-American line was due the 20th and I at once saw the agent of that line, and made to get a passage for the boat and ourselves. Captain Kidd never, as I heard of, left a child, but if he did, this Gibraltar agent is a direct descendant of that celebrated pirate and shares with his illustrious ancestor the rapacity and discourtesy that makes buccaneering such an alluring and happy profession. He was the most disobliging man I think it has been my joy to meet and do business with, and as he had us caught short with the vessel making astern board he put the hooks in to stay.

At first he refused to take us, saying there was no room on the steamer, then he agreed to wire the head office at my expense. The head office wired back, saying that it would be difficult to transport yacht, and that we would have to get permission of the Italian Royal Commissioner, an officer who has charge of the emigrants on these steamers. This gave me my cue and I got to work. The next day an order came from the Italian Minister of Marine directing that Sea Bird be taken on Moltke and transported to Naples. This settled it, and the agent was obliged to obey, but he soaked us one hundred dollars freight, besides thirty dollars apiece passage money. Mind you, I don't believe the Hamburg-Ameri-

can line would have taken this advantage of us. I have had considerable dealing with that company and have always found them most generous and obliging, and if I had had time to appeal to the head office at Hamburg I am sure we would have received every assistance and courtesy.

While this was going on, the boys between times were overhauling the Rock and enjoying the hospitality of the members of the Gibraltar Yacht Club. We went to the Consulate and paid our respects to Mr. Sprague, the United States Consul, a gentleman who is greatly interested in sport, and who gave Bird and her crew a very hearty welcome. We are also particularly indebted to Mr. Pitman and Mr. Flower for many kindnesses; the latter, an old RUDDER reader, is a real boat crank, and owns a smart little racing sloop. The police and post officials without exception treated us with attention and kindness, and I wish to take this opportunity of thanking them for their courtesy to the Sea Bird's crew.

But the word Gibraltar in the minds of Sea Bird's skipper and crew will insolubly be joined with the name of one man, that of Mr. Arthur Hayden, the American Vice-Consul. It is impossible to find words to express our gratitude and affection for Mr. Hayden, who, when we needed a friend, came forward and generously and nobly took upon himself the task of saving our expedition.

The landlady at the hotel, Signora Arteseni, a handsome merry Spanish lady, did her best to make our stay pleasant, and knowing we must have had many banyan days during our voyage loaded the table with all that was delicious in the market. She and the head waiter had their pictures taken in a group with us, at our earnest request, for publication in a Spanish illustrated paper. It was the event of their lives. If you go to Gib. be sure to come to anchor at the Continental; it is clean and reasonable, and the landlady, if you tell her you know Sea Bird's crew, will take care of you like a queen.

When I found we would have to take passage on Moltke and pay heavily for it, I cabled to New York for some of the necessary and patiently waited. No answer; cabled again, no answer. Cabled again, no answer. Here was a devil of a fix, and at last when all hope was lost of hearing from home, I appealed to Mr. Hayden. He promptly came to my rescue and very kindly advanced a sum sufficient to pay the freight and passenger charges, a great, kindly act which I never shall forget and never be able to square him for.

Now listen: when in Europe have nothing to do with the American Express Company; of all the miserably run clap-trap business, theirs is the worst. The remittance had been promptly wired to their London office, the London agent sent it on to an obscure banking house at Gibraltar, and then wrote me *by mail* informing me where the money was to be found. This is a specimen of the way the company does business. Mr. Hayden and I scoured the town looking up all the banks, but never thought of going into this hole, and there lay the money safely stowed in the locker of a descendant of Shylock, while I fretted and fumed. Imagine the business acumen of a man who would notify you of a cable remittance by mail. Take my advice, when in Europe have no business with the American Express Company. When I reached Naples, Mr. Hayden wired that he had found the money and had cabled it to the Bank of Commerce where I received it on our arrival at Rome. The London Agent's letter came some days after, a truly

modern way of notifying a stranded person that a remittance had been sent.

While the financial panic was at a head, the boys had Bird stripped and alongside Moltke, ready to hoist at the davits. They first talked about putting the boat on deck, but I persuaded Captain Meyers, a real sailor of the old school, that she would swing safest and easiest at the davits. So they swung out a pair amidships on the starboard side, and the boys put the slings under and hooked on the tackles.

The job aloft was bossed by the Second Mate and the Bose and though warned that there was a turn in the tackle they persisted with true Dutch pertinacity in hoisting away, consequence, when about a fathom from being a-block the twist jammed and Bird stuck. Captain Meyers, hearing the ensuing palaver, came forth, and jumped on Goodwin and Thurber for the mix-up, but paid them the compliment of saying they being sailors ought to have prevented a bunch of deck mechanics from jamming a fall. He afterwards apologized to me for berating my crew for something they were not to blame for, and this led to a talk over the present breed of seamen, and their want of knowledge of their profession. The Moltke's crew were real steamboat sailors, and half of them could not pass a lashing or tie a proper knot. Steam has certainly played Hades with seamen, not only the merchant service but on vessels of war. But at last Goodwin shinned the tackle and soon showed these deck degenerates how to clear the jam, and Bird was hoisted home. I rather took pride in Captain Meyers calling my crew sailors, even if he did so in anger, but it was no fiction, for you would have to go through the fleet with a very close-toothed rake to find two better all-round seamen than Goodwin and Thurber. Like Brutus, I may be an older soldier, but doubt if I'm a better one.

The Moltke was crowded with Americans going abroad and they gave us a splendid reception. Thurber ran across an old friend of his family, and several ladies from, in or near Providence, and we had the news from home. That night I gave a talk in the saloon, with Captain Meyers's kind permission, and kept the audience interested for eighty minutes. The officers and crew of the steamer treated us finely and we had a very enjoyable three days.

Sunday morning, July 23d, at 7 a. m. we arrived at Naples. The Captain of the Port came aboard and gave us permission to put Sea Bird afloat, and get away at once, as the cruise had left that morning at four o'clock for Fiumicino and they wanted us to hurry after. He also said a torpedo destroyer would come after us. A gentleman, a relation of my old friend and reader, Mr. Vincenzo Cardillio, took charge of Bird's helm and we were about to start for the yacht basin at St. Lucia to say how-to-do to the yachtsmen, when a rowboat came alongside and a couple of newspaper men asked to be allowed to board. One who spoke English said they were accompanying the cruise, but had waited over to welcome us; he asked if he and his friend might sail with us to Rome. We were only too glad to have their company, and I bade them welcome to our home.

Under the guidance of our pilot we ran into the basin at St. Lucia, and amid cheers and hand-clapping made fast to the float and spent a few minutes with the Napoli yachtsmen. The welcome was a warm one and we had hard work to break away, but they let us go after I had promised Mr. Guido Florentino, the Vice-President, that

we would come back and give all hands a chance to entertain the Bird and her crew.

At 10 a. m. we started up our little Knoxy, and with flags saluting, cheers and good wishes in Italian and English, headed away North for the Mouth of the Tiber. Working out up the bay we passed through a fleet of fine yachts, whose fair passengers joined with the crews in cheering us. The following description of the trip up the coast was written by Olindo Bitetti, a reporter for the *Courriere de la Sera*, a leading journal published at Milan. Mr. Bitetti was with us all the way to Rome, and piloted the boat up the Tiber. He was an all-round athlete, a good boatman, and an extremely intelligent

man, and we took a great liking to him. Despite the fact that he spoke no English nor understood it, he caught on in a marvelous manner to all that we were doing, and joined in the task of working the vessel with skill and alacrity.

The other reporter, whose name I regret has escaped me, was also far above the average intelligence, and could speak English, we became good friends with him, but unlike Bitetti he took very little interest in practical navigating, and spent his time when not writing, in singing Italian songs and parts from the operas, in which the engineer joined. Goodwin translated the story literally, and it is not only truly descriptive but in some way to our Anglo-Saxon trained intellect, rather amusing.



FROM NAPLES TO FIUMICINO ON THE SEA BIRD

EPISODES OF THE CROSSING OF THE ATLANTIC

(By Telephone from our Special Correspondent on Board)

FIUMICINO, July 24th, night.—The Sea Bird departed from Naples without much applause, modestly and without the escort of war vessels. A few sailors gathered and cried out the traditional "bon voyage," uncovering their heads and waving their hats. Understand, the Sea Bird is a vessel without pretense and her men have the unique thought that to cross the sea is a proper amusement.

I hardly had one foot aboard the little vessel before I formed the idea of the difference between her and the other yachts taking part in the International Cruise. Nothing for show, nothing luxurious; a vessel as rugged as a fisherman but accurately studied out in every detail by a man practiced in sea-lore; wide, short and chunky with deck all covered in, ruling at her pleasure over the fickle elements: and with the convoy of an ample sail plan and the help of an engine of 3-h.p., she accomplishes an average of 120 miles per day. On board the Sea Bird there is none of the preoccupation which comes with high speed. They travel as they may and arrive when they arrive. And so very slow, about three miles per hour. We were to leave from the port at 10:15, but it was impossible to take this step because the news of the arrival and departure of the Sea Bird spread like lightning among the yachtsmen and one of the club members whom we encountered, begged us to make a short stop at the clubs at Santa Lucia. Mr. Day accepted the invitation with a simple nod of the head, without effusion, calm and impassive.

When at 11 a. m. we finally departed, they saluted with repeated and clamorous "Hurrahs!" from hundreds of throats, and all the pleasure craft within radius hastened to take part in the demonstration. The crew commenced to hoist the sails. Mr. Day, who does not like laziness on board, gave me an order to help the two sailors to do some necessary work, and his command

was so exact that I could not pretend ignorance and obeyed the order. In a short time the three sails were hoisted but the wind was contrary and we were forced to tack. The crew of the Sea Bird was not disappointed at this, as the panorama of the Gulf of Naples is so entrancing that to view it is worth the price of the delay. Mr. Day, who under an appearance of gravity, conceals a temperament of much humor, installed himself at the helm, thus diverting himself by startling, with clever maneuvers, the fine yachts and cutters which followed in our wake. One yacht more than the others, clean-cut and elegant, attracted their attention. She carried on board a dozen graceful ladies whom they diverted immensely, and who created a great furore about them. The captain steered as though he was about to run into them. Loud shrieks, more from amusement than fear, rent the air: there was a moment of uncertainty and suddenly amongst clamorous hurrahs we sheered away. After a short time the merry party was lost in the distance and nothing was left but the echo of their cheers. The companions of Mr. Day, two fair young men, true types of the new-style Americans, completely shaved, clad in sleeveless shirts or with bodies nude above the waist, they move about the vessel always busy; at times one of them disappears in the hatchway and gives a look at the engine, then appears with a book and reads or studies attentively, smoking, smoking, always desperately.

That which is most amazing above all is the great friendship which exists among these men. Working together for the good of all, with hardly the exchange of an order, without discussion, and what any of them do is well done. It is impossible to imagine a type more simple, more loyal or more bold. They seem not to feel the grandness of the voyage they have completed, laboring like humble workmen at all the baser services, al-

though being perfect gentlemen. The older of these, Theodore Goodwin, is thirty-four years of age and resembles marvelously Prince Scipione Borghese. It is he who best stands the infernal heat below deck. There he spends long periods of time caring for the engine—he is the engineer on board—or applying himself in the kitchen because he is also the cook. At other times he endeavors to straighten out the characteristic disorder which prevails in the little cabin: in length only about three meters and a meter and a half wide: but which contains the engine, two beds, the kitchen, the kitchen utensils, the glasses, the books, an office, the wardrobe and a small drug chest. I have also noticed a fire extinguisher in event of a conflagration.

The other member of the crew is Frederick Thurber, about twenty-eight years old. He prefers working outside and upon him devolves the care of the sails and rigging. He diverts himself in making signals to passing steamers or lighthouses. His chief characteristic is not speaking very much. He laughs sparingly at the jests of Mr. Day or at the bold romances sung by Theodore, who is enamored of our Mascagni and Puccini, and every now and then he sticks out his head covered with sweat from the companionway, launching robust notes upon the winds, singing more or less from *Cavalleria Rusticana*, *Pagliacci* and parts of the *Girl of the West*.

Mr. Day does not profit by his position of owner and captain of the ship. Hard as a nail, with body bronzed and wrinkled, he works without ever perspiring, without ever seeming vexed, vigilant for the trifles which his companions may possibly have overlooked, seeking to do a little scrubbing or to repair the trifling damages which the sea may have done to his beloved vessel.

With three men of such mettle, so thoroughly excellent, one can become marvelously intimate. We met at 10 a. m., at twelve we had become old friends, and when spread upon the deck we ate the provisions prepared in the morning, we toasted heartily America, Italy and Rome. The wind, constantly contrary, forced us to tack and we proceeded only about three miles per hour. Some porpoises swam around us at less than a meter distant. At 4 p. m., having not yet passed out of the Gulf of Pozzuoli, we saw in the distance, coming from the direction of Naples, a great ship advancing.

"It is the Moltke," cried Fred, who anxiously prepared to make signals. "We received many courtesies from them on the voyage from Gibraltar to Naples," he said. But he had also a secret reason for such eagerness and Mr. Day began to explain. "He has left a wounded heart on board," he said. "A pretty young girl, blonde as he." The Moltke was soon upon us, so close as if she would crush us. The passengers and crew crowded all parts of her and waved madly. The siren blew and she answered with flags our signal, "Pleasant voyage."

In a short time the great ship was lost in the distance. The wind had completely dropped. We started the engine and proceeded solely by the power of the little engine. At six o'clock Theodore suddenly disappeared in the companionway and shortly after he reappeared with a pot and stewpan and began to pare potatoes with the skill of a master. He manipulated with comestibles for some time and at seven o'clock announced that dinner was ready. Mr. Day knocked on a bronze plate with a hammer in the manner of a tomtom. We placed ourselves at table. The cooking utensils are not many and the service left something to be

desired, but the cook received general applause. He knew how to prepare a fine soup and had cooked a goodly portion of savory peas, and while with his head sticking out from the hatch, he ate his own portion, he gave the particulars of the various dishes. Soup from New York, potatoes from the Azores, peas from France, meat from the Moltke, wine and bread from Naples. Toward eight o'clock a light breeze ruffled the water. Frederick desisted at once from his noble occupation of washing dishes and turned to the sails, which he hoisted quickly. The whole boat responded with greater celerity, the engine pounded merrily and we spun along at a good six miles per hour. We navigated across the Gulf of Gaeta. Darkness approached rapidly and we lowered the flags and substituted lanterns.

The night was magnificent and after a brief rest which I conceded to myself, seating myself beside Theodore who was at the helm, I begged him to recount the voyage of the *Sea Bird*. And he consented, narrating in an Italian very diverting but quite efficacious.

"We departed from Providence," he said, "in the Island of Rhody, the 10th of June, participating in a great parting celebration of the population and of our friends in the various clubs, some of them forming an escort for nearly two days. The sea was quite rough but not stormy and the wind was favorable but not heavy. On the third day of navigation we encountered the steamship *Barbarossa* of the Nord Deutscher Lloyd, by which we took the opportunity of sending a marconigram to the New York *Herald* giving notice of us. From this day we completed twenty days without having seen another vessel although holding a course always in the track of Transatlantic vessels. The sea remained always fairly smooth and we covered from 100 to 120 miles per day.

"Only on one day, the 16th of June, the wind was so strong and fair that we succeeded in covering in twenty-four hours 183 miles. This constituted our record, but the conditions changed soon after. The sea grew much worse and on the 22d it impeded our voyage about in the middle of the Atlantic. The waves became very violent, the seas being of such gigantic size that it was not possible to carry the sails or run the engine. We were obliged to bottle up the boat, as the captain is pleased to call it, so as not to be washed off by the sea, where we spent one day watching the waves through the little glass ports and scanning the horizon for some signs of relief from the conditions which invested us."

Profiting by a time of relative mildness, they thrust themselves outside and holding on by a rope they had the audacity or unconsciousness of danger, to make pictures with their camera, photographing the mountainous masses of water which encompassed them, always threatened by the encircling seas.

Continuing he said: "After the end of the storm we encountered a fishing boat. Those on board gazed at us in stupefaction. On the first of July we arrived at the Azores a short time to replenish our stores and gasolene. We were entertained there by the foreign colony and departed on July 5th. Thereafter we had always fine weather and a tranquil sea except for one day, the date of which I do not remember, the wind being so contrary that we only succeeded in making about 50 miles, our lowest record. We arrived at Gibraltar so delayed that we found we could not keep our appointment at Rome under our own power and therefore took advantage of the coincidence of the sailing of the S.S.

Moltke from that port to Naples. Our object was already an accomplished fact, namely: that with this little craft it was possible to safely complete the crossing of the Atlantic."

"And during these long days of sailing were you not affected with homesickness or melancholy?"

"As you have seen to-day, we were always busy and had no time for such trifling annoyances."

"And no incidents or accidents of note happened?"

"One alone. A few days before our arrival at Gibraltar, the captain volunteered to substitute in the kitchen. He promised to serve an extraordinary dish. And we noticed that he worked below a long time. Finally he announced a stew in which there was a little of all our different kinds of provisions. We ate with relish, only, some hours after eating, when cleaning the pot as usual, we found at the bottom a torn and soiled sock."

While Theodore finished his narrative it became

dawn. Before our face arose Mt. Circeo. Suddenly we made out in the distance a ship of war, but the vessel steamed away in the direction of Gaeta. At 12:20 we arrived unexpectedly at Porto D'Anzio. The captain of the port proceeded to place himself at our disposal and shortly after we were fêted by the bathing colony. We had scarcely resumed our voyage when we encountered the torpedo destroyer La Carabiniere that yesterday had been hunting for us. They asked if we wished to be taken in tow to Fiumicino. Our captain accepted and a line was thrown and made fast. We were drawn through the water at a velocity entirely unsuitable for the Sea Bird. Leaving Porto D'Anzio at 3:30, we arrived in the little port of Fiumicino at seven o'clock amidst a festal assembly of the entire population. Tomorrow the little ship completes her wonderful voyage, leaving here for Rome.

(Signed) OLINDO BITETTI.



HOW TO BUILD A POWER SNOW YACHT

William Atkin

SNOW! It is about two o'clock. All morning, and for days, we have been looking for it. There has been skating for a week, and November has only begun. All morning the classroom has seemed dull, but the magic sight of the white flakes sends a tremor of excitement and joy through each breast. Oh, gladsome sight of rapidly falling snow! Why, by four o'clock, there will be enough to slide upon—and to-morrow is Saturday! It is difficult to believe that, with the lapse of but a few years, from boyhood to manhood, one's ideals should change so materially as to the value of snow—coasting, snowballs, and slippery board-walks. It's fun while one's a boy, and to some of us it's fun now.

Just as clear as though 'twere yesterday, I can catch a glimpse of the hill where we coasted and can see the sleds, some freighted with two, belly-whoppin' across the field; others are hooked up, four, sometimes five together, and with a full load and added momentum reach most to the place where the brook gurgles and journey under its arches of ice and snow.

The song of Winter is in the air, and as the sun rides down into the West, great long shadows like phantoms, steal down the hillside, and one sees the trees along the ridge silhouetted against a sky of fire. In the dusk little feet are homeward-bound, faces glowing, happy, with that dearest of all treasures to a child, a sled, trailing behind.

Thus it is that Winter seems to me always full of life. The revelry and romance of childhood hours bridging a span of years, and with frosted breath kissing to-day. To-day with its science, its engines, its smooth, well-kept roads, its power to do anything and everything—but, as Jimmy says, "Them was the happy days!" and most of us join him.

I'd planned at this writing to tell as much as I know about the building of a power sled, so sled it must be.

The craft shown in the drawings and photographs was built several Winters ago, and worked very well; even over roads where the snow had not been packed, on smooth stretches and over ice, it really had speed;



The Power Snow Yacht Complete



Getting Underway

THE RUDDER

but it will not navigate a deep fall or gambol over hummocks. It is nix then, and many pushings.

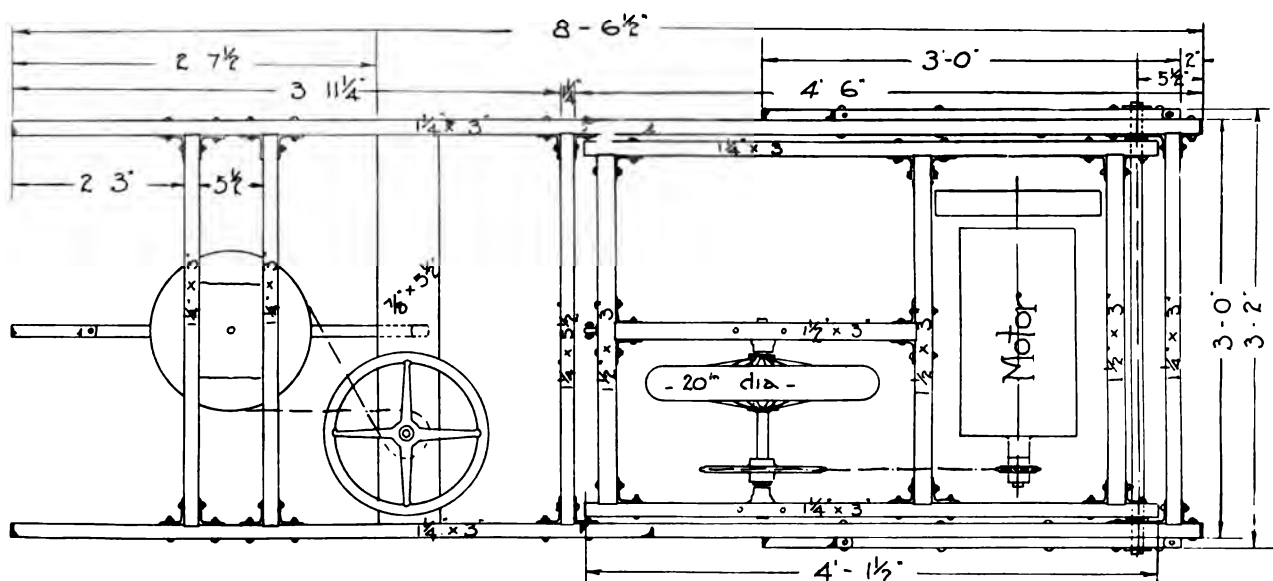
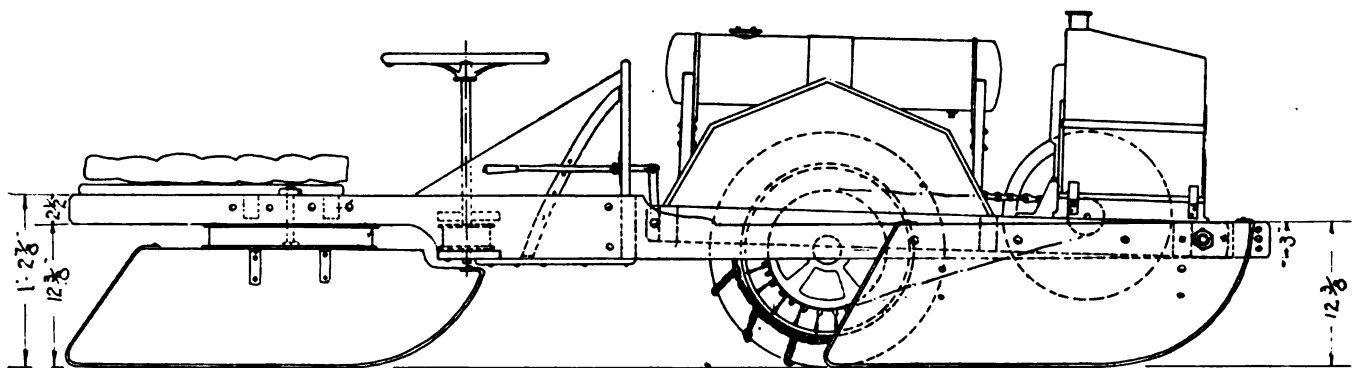
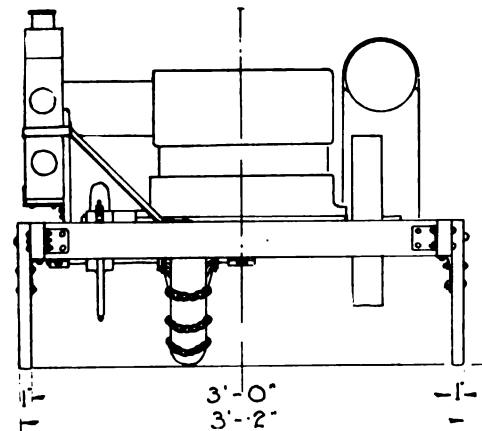
Fig. 1 shows the dimensions and details of the runners. There are two, and they had best be made of $\frac{7}{8}$ -inch oak, shod with flat iron shoes, and doweled with $\frac{3}{8}$ -inch iron rod at distances of 10 or 12 inches. These will prevent warping or splitting and add greatly to the strength.

Fig. 2 gives all the necessary details and sizes for making the rudder and its attendant gear. The blade is of $\frac{7}{8}$ -inch oak, fitted with a flat iron shoe and doweled even as the runners. A 14-inch drum of oak, 2 inches thick, turned with a flange each side, screwed in place and then securely fastened with two $\frac{1}{4}$ by 1-inch angles on each side, makes an excellent turntable for the runner. In the center of this fit a $\frac{5}{8}$ by 5-inch long bolt, letting the head in flush, to form the king bolt. Notice that the bolt is forward of the center; the machine steers better with it so.

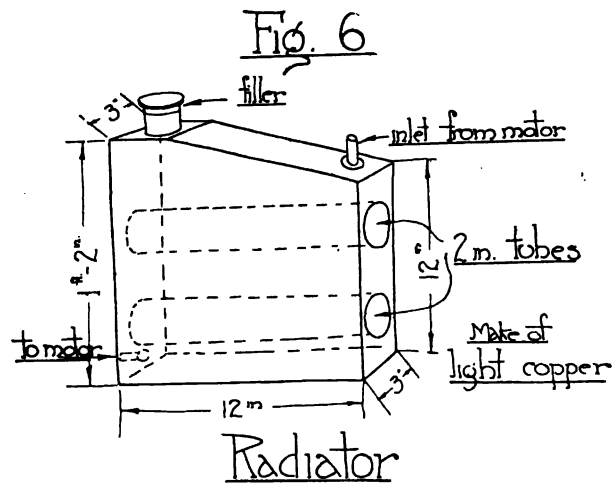
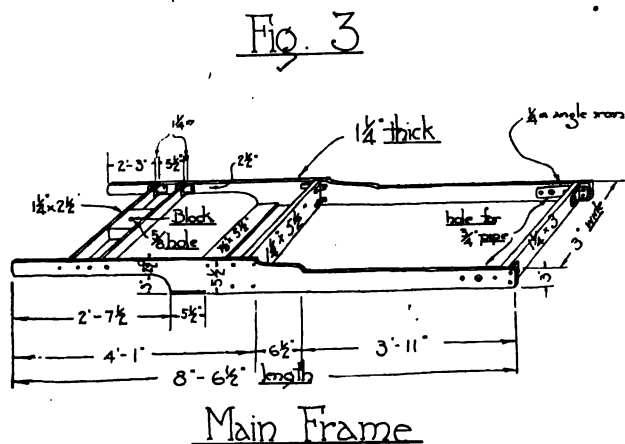
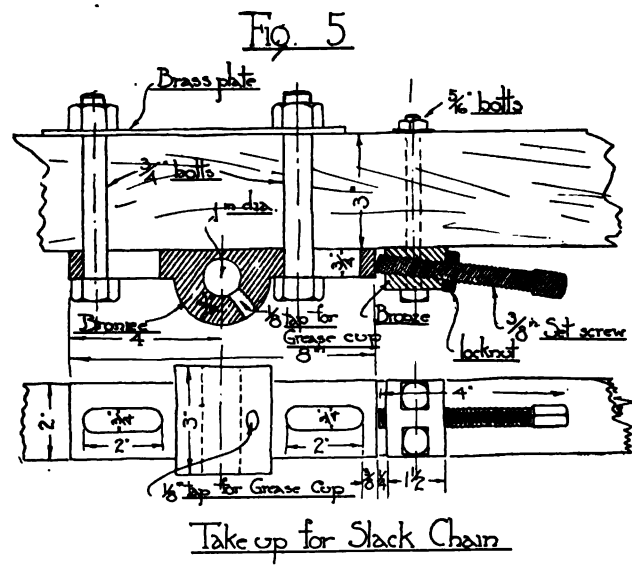
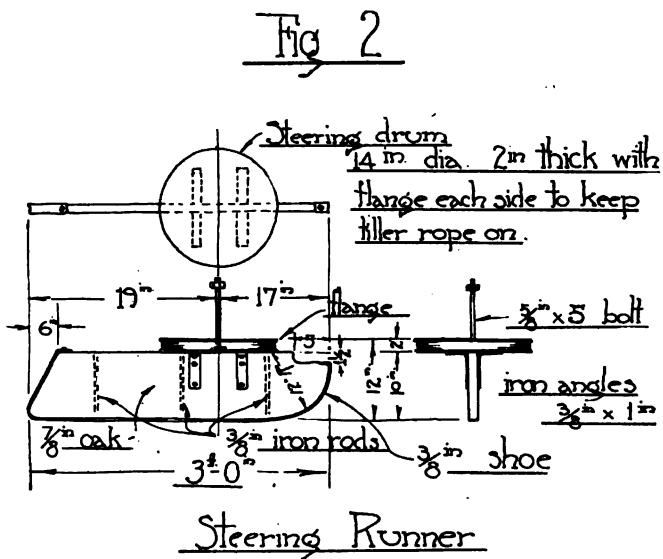
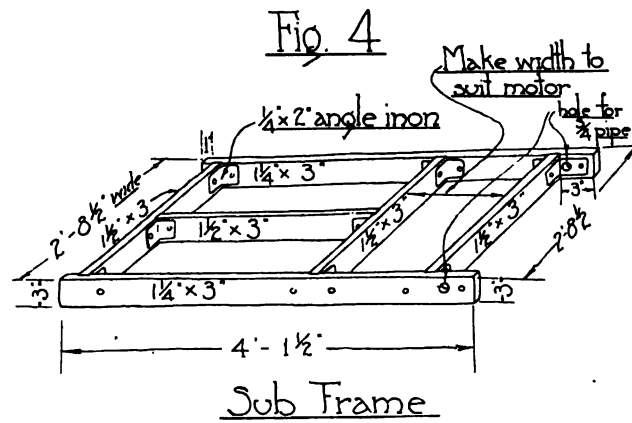
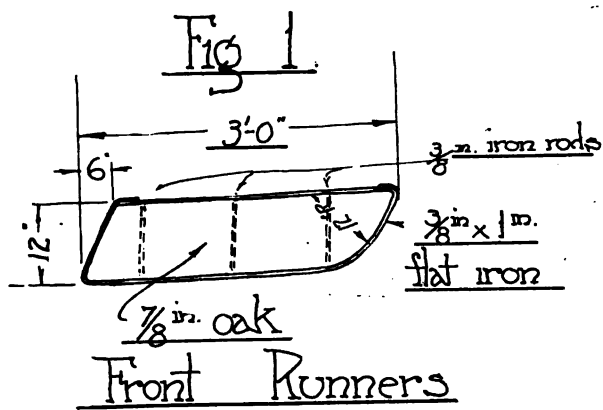
The main frame is built of $1\frac{1}{4}$ -inch oak. Fig. 3 shows the dimensions and the method of bracing the corners. The angle irons in the after corners of the forward cross member are left 5 inches long, and the hole for the $\frac{3}{4}$ -inch pipe which carries the forward end of the sub-frame is bored through them and the wooden frame. There is a block 9 inches wide between the two after cross members that forms a bed for the after runner to turn upon. Make this of oak and have the under side very smooth, treating it to a thick coat of tallow before

connecting to the after runner. The forward runners are bolted to the main frame with $\frac{1}{2}$ -inch bolts, four as shown in the construction plan, then braced by fitting angle irons, one forward, one after on the inside face of each runner and the under side of the frame.

Fig. 4 shows the sub-frame. This carries the engine, driving wheel, tank, radiator, etc., and swings from a $\frac{3}{4}$ -inch pipe running across the machine forward, held in place by a locknut each end. The over-all dimensions must be as given on the drawing, but the other dimensions will be governed by the size of the engine selected and the shape of its base. An engine of 10 to 20



Side Elevation, Body Plan and Rear Elevation of Power Snow Yacht, Designed by William Athin





At Full Speed



With a Passenger

h.p. will give lots of speed and sufficient power to climb through rough places on the road.

After considerable experimenting 'twas found that a pneumatic tired wheel fitted with chains gave better tractive force, both on ice and over snow, than various spiked wheels, aerial propellers or pushers. The chains fling about and clear themselves of snow and on ice hold as well as spikes. The wheel shown is 20 inches in diameter, fitted with 3-inch tires—this is a size much used in aeroplane construction and so can readily be obtained: the hub must be large enough to receive a 1-inch diameter shaft and be keyed and pinned fast. Very good bearings with a simple way of taking up the slack as the driving chain stretches is shown on Fig. 5: these are bronze castings. Don't forget to fit each one with a spring grease cup for lubricating purposes. A 10-inch diameter sprocket for $\frac{3}{8}$ -inch wide chain of about 1-inch pitch keyed and pinned to the driving shaft between the bearings and, of course, in line with the driving sprocket on the engine shaft, gives a positive drive. A clutch is not necessary. When starting up the engine the after end of sub-frame is lifted by means of the lever shown on bulkhead or dash, until the driving wheel is clear of the snow, allowing it to revolve freely. In getting underway lower the sub-frame, letting the wheel slip until the good ship gathers headway, at which time skip it into high, or in other words, allow the full weight of sub-frame, engine, etc., to ride on the driving wheel.

Minor details may be changed to suit. To many the vertical steering wheel is awkward, but it steers as well so and is more simple to install. There is a 4-inch diameter drum at the foot of the column around which is rove a $\frac{1}{4}$ -inch steel flexible steering rope connecting to the larger drum on the after runner.

Any sort of a gasoline tank may be used; the one shown is cylindrical, 6 inches in diameter and 2 feet 5 inches long. It is mounted on the sub-frame and piped to the engine with soft copper tubing about $\frac{3}{8}$ -inch diameter outside.

Fig. 6' shows an inexpensive radiator that will keep the water sufficiently cool. In installing the engine arrange to have the inlet side aft, thus keeping the carbureter in the lee of the engine's warmth.

Build a box over the driving wheel and the chain and hold it in place by suitable hooks. Across the after end lay $\frac{7}{8}$ -inch planking, and also floor over the cockpit. A cushion on the after deck adds greatly to the comfort and looks well. Varnish all of the woodwork, painting the metal parts gray or dark green to prevent rust if not for beauty.

The photos are of a little machine very similar to the one shown here and it traveled about the roads with ease and comfort. Once it was ditched to escape a collision with a frightened horse. Note the position of its drivers and the delight the little lad by the roadside shows at our bodily gyrations. But it is fine sport.



Stop for Tire Trouble



Ditched!



Raven II and Louisa. Designed and Built by the Gas Engine & Power Co. and Chas. L. Seabury Co., Cons., Last Fall, for Messrs. Carl G. Fisher and Stoughton A. Fletcher, of Indianapolis, Ind. Plans in the November Issue

GERMANIA MARINE DIESEL ENGINE

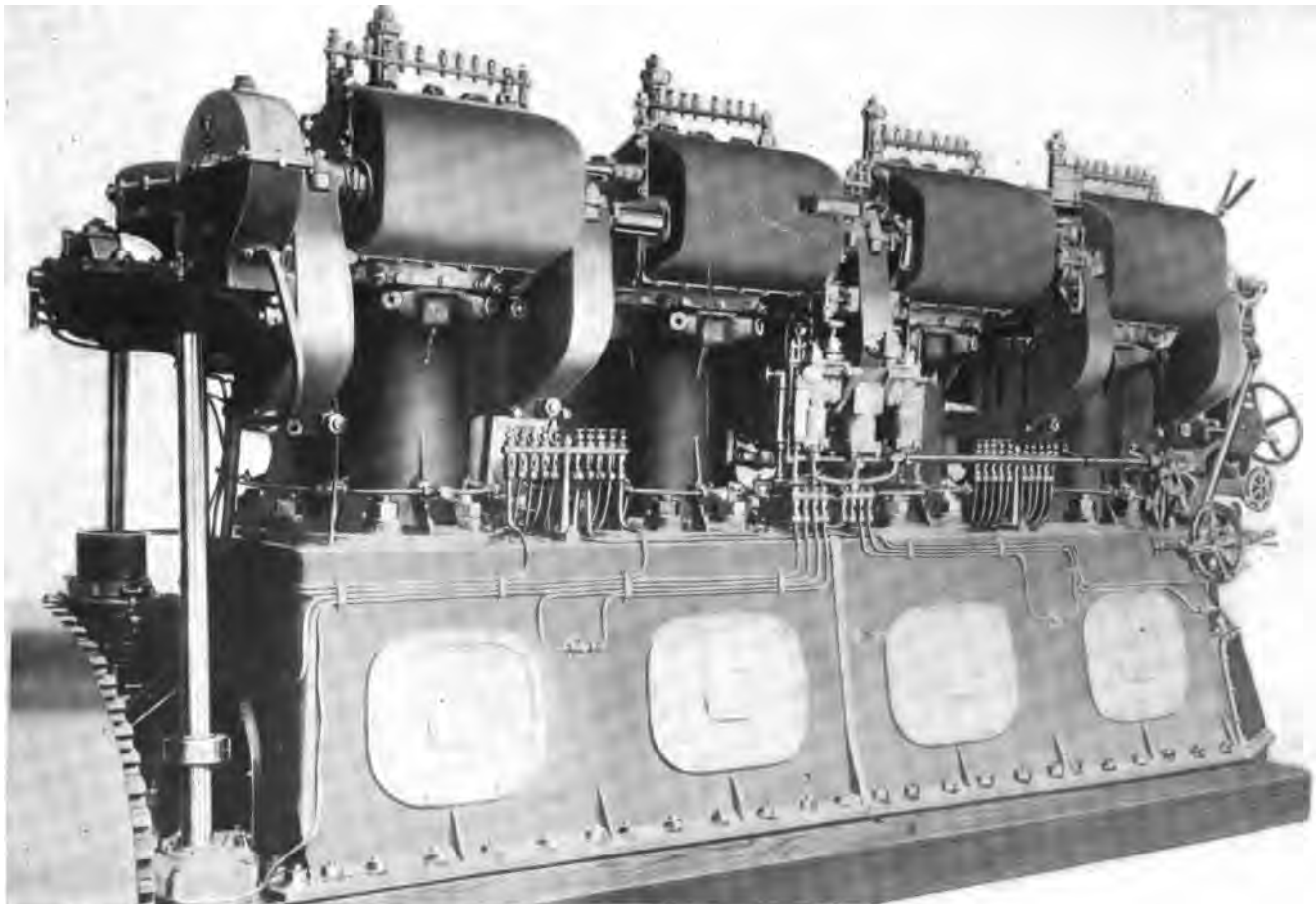
WHEN a firm with the reputation of Messrs. Fried Krupp commences the construction of big marine heavy-oil engines of 2,000-h.p. per cylinder, shipowners should no longer heap ridicule upon the possibilities of engines of the Diesel type superseding steam machinery in vessels of 20,000 or more tons, in the near future, more especially as two other notable firms, the F.I.A.T. Co. of Turin, and the M.A.N. of Nuremburg have boldly jumped from 1,000-h.p. to 12,000-h.p. All three firms have a six-cylinder marine oil engine of the latter size well under construction. Pessimists may shake their heads, but the builders are confident of success, and are not out to waste money to such an extent purely as an experiment.

Krupps already have had great success with marine oil engines up to 1,000-h.p. and I am enabled to give an illustration and full details of their 300-h.p. Germania reversible engine, designed for use in tugs, yachts, or small passenger vessels. It is of the single-acting class, working on the four-stroke principle, which renders the engine very economical to run; in fact, the fuel consumption at full speed is but one-third of a pint per i.h.p. of oil having a calorific value of 10,000; that is to say, a net heat value of 18,000 B. T. U. per lb, and various fuels have been used during tests including naphtha, coal-tar oil, and oil gas tar, with excellent results.

There are four water-cooled cylinders each having a bore of 13 inches by 13 inches stroke and 300-h.p.

is developed at about 400 r.p.m. On the upward stroke the air is drawn in and compressed to 33 k.g. per square inch, and as the piston reaches the top, fuel is injected at a compression of between 55 and 70 k.g. per square inch according to the running speed, combustion being instantaneous, no electrical, or hot bulb ignition being required. The scavenging stroke is, of course, on the same principle as most four-stroke engines. All the valves, the inlet, exhaust air admission, and the fuel valves are arranged on the cylinder heads, being driven off an enclosed overhead cam-shaft, which in its turn is operated by a vertical shaft and helical gear wheels off the forward end of the crank-shaft between the flywheel and the main body of the engine. The flywheel, by the way, is a great factor in preventing propeller racing when the stern of the vessel is lifted by a following sea. The flywheel being fairly heavy the engine has little chance of running away before the load is again resumed. Even were the speed to increase the governor would automatically cut off the fuel supply until the normal revolutions were regained. But the flywheel has more than one use: preventing vibration. With some Diesel engines there is no flywheel.

The two-stage compressors, which supply air for starting, reversing and fuel injection, are driven off the crank-shaft at the after end of the engine near the control wheels, which can be seen on the right hand of the illustration. For reversing and starting the air is stored in two steel cylindrical bottles at a pressure of about 500 lb per square inch, the capacity being sufficient to



300-H.P. Germania Marine Diesel Engine

start the engine sixteen times, and as the compressors are always at work when the engine is running there is little fear of it being unable to be maneuvered when required.

Reversing is carried out by moving the cam-shaft and bodily bringing another set of cams into action. At the same time the fuel supply is momentarily cut off and compressed air admitted. The opening and shutting of the various valves are arranged, of course, in conjunction with the positions of the cam and crank-shafts. All gearing is entirely enclosed, giving the engine a very clean-looking and workmanlike appearance.

There are some very neat features in connection with the lubrication arrangements. Oil is contained in the water-cooled crank-case sump, whence it is drawn by pumps, through a filter and to sight-feed drips, and then along a number of small pipes to the various working parts. By this arrangement every bearing can be assured of its exact amount of lubricating oil, as each of the many sight-feed drips is hand-regulated; also any chokage can instantly be detected. The fuel pumps can be seen in the center of the engine between the cylinders on the port side, the drive being off the cam-shaft.

Regarding the materials used in the construction, it is interesting to note that the cylinders and crank-case are bronze castings, the cylinders, of course, being fitted with cast-iron liners. Large inspection doors are provided to the crank-case, through which, I understand, the pistons can be removed if necessary. The pistons are of fine-grained cast iron, while the crank-shaft, cam-shaft and connecting-rod are made of special high-grade Krupp steel. It is useful to note that a six-cylinder Germania engine of rather lower horse-power was installed aboard the Hamburg tug Rapido, a 20-ton vessel. At 400 r.p.m. her speed was $10\frac{1}{2}$ knots, and she had a pulling power of 2,800 lb at $6\frac{1}{2}$ knots.

J. R. W.

PRODUCER-GAS BOAT

As a further indication of the progress of the application of producer gas for marine propulsion, the passenger and freight boat herewith described is an interesting example of the trend of events. THE RUDDER has heretofore presented information on the subject and as a result great interest has been manifested by its readers the world over.

The boat shown in the illustration is owned by Mr. Sixto E. Garcia, of Merida, Yucatan. He is operating her on the Gulf of Mexico between Campeche and Champetón. The hull is of the knock-down type and is 52 feet in length over all, 49 feet 7 inches on the water-line, 12 feet breadth, and 3 feet 8 inches draught. She is propelled by a four-cylinder, four-stroke, $7\frac{1}{2}$ by $8\frac{1}{2}$ -inch marine gas engine and a 50-h.p. marine gas producer furnished by the Marine Producer Gas Power Company.

Two round trips are made each week, the distance one way being 50 miles. The time of leaving Campeche is usually 7 a. m. and the arrival at Champetón 11:15 a. m. Charcoal is the fuel which is being used and is obtained in bags, which hold about 50 lb. The cost of the fuel is \$1 Mexican per bag. The fuel consumption for one round trip is about 600 lb and the fuel consumption per week is approximately 1,500 lb, which includes the standbys, this costing \$15 United States currency as against approximately \$50 to \$55, cost of gasolene.

It is interesting to know that the abovementioned company contracted for the entire power equipment, including the engine, and shipped the same complete to Mr. Garcia with detailed instructions for installation and operation. It is quite evident that the purchaser had no difficulty in understanding the instructions, as the plant has now been in operation for a considerable length of time and nothing was heard from the owner until some little time subsequent to the first start, which was in every way successful.



Mexican Producer-Gas Boat Equipped with 50-H.P. Producer, Manufactured by the Marine Producer Gas Power Co., of New York



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 1 Hudson St., N. Y., U. S. A.



SEA BIRD TAMERLANE

I ENCLOSE a photo of my Sea Bird, Tamerlane, built for me in the Spring of 1910.

She is a keel boat, and the only change I made in the plans was to raise her freeboard three inches. This gave a little more shoulder room on the berths below. As the photo shows, she carries more sail than the original boat, her area running to about 475 feet, the increase being spread over the three sails. Our winds here are mostly light to moderate, so that I do not have to reef very often. A 3-h.p. engine under the bridge deck gives her a speed in smooth water of 4½ miles per hour, which helps a lot in cruising.

She is not particularly speedy to windward, but off the wind goes very well. Her best record was a four-mile reach in thirty minutes. On Labor Day last, we reached across the Gulf from Gabriola Beacon to the Point Grey bell buoy, 20 miles, in three hours. The first hour out we had two reefs in the mainsail. After that the second and first reefs were shaken out, and the last hour and a half was made under full sail and a failing wind. She has to her credit one or two other runs just as good. I find her roomy and comfortable for a small boat, and a good, able sea-boat.

Have read with much interest your account of the crossing in Sea Bird. While I have no doubt of her ability to make the trip, I don't know of anything belonging to me on the other side of the Ocean that I am going to go after in a boat as small as Tamerlane.

You will see from the photo that I have one of Winfield Thompson's "Wee Pups" tagging along behind. Mr. Thompson can have the whole litter. I am changing to something that does not push the whole bay in front

of her. Every time I pull over to the Club some rude person makes a remark about the tide coming in. One of the boys last Summer asked me where I got the Cas-ket, and the name stuck.

We have in our fleet the only Sea Birds that we know of North of San Francisco: Whitecap, illustrated in your pages a couple of years ago; Pathfinder, whose photo appears in November issue, and Tamerlane.

Royal Vancouver Y. C.

W. G. BREEZE.

WANTS AN AUXILIARY

It cannot be denied that the gasoline engine is rapidly causing the disappearance of the sailing yacht, no less than of sail craft in general. Neither will it be denied (I trust) that this fact is very much to be deplored. It seems to me that the auxiliary yacht is the only possible salvation for the wind-jammer; and that, to accomplish such salvation, some patriotic and capable fellow-citizen like our friend "the Oldman," must get busy, and design an auxiliary which will sail fairly well with the smallest and handiest possible sails.

An auxiliary of comfortable size and breadth, which would "steam" fairly fast, and sail fairly well with sails which could be easily and quickly handled, would surely be a blessing to the poor, discouraged real sailor.

WIND-JAMMER.

[I am going to get at this job as soon as the decks are cleared up and I have a spell below.—EDITOR.]

AUTO SUGGESTION

THE following remarks relate exclusively to cruising boats. I know nothing about racing boats, and care nothing about them, except sometimes I think a Viper on the side would be good sport.

The economical speed of most cruisers from 30 feet to 40 feet in length, which probably includes 80% of all cruisers, is just about 8 miles an hour. In cruisers of such length, such speed may usually be had with from 5 to 12-h.p. Such engines are cheap, and have no extravagant appetite for gasoline.

But because it has been comparatively cheap and easy to get 8 miles an hour, most cruiser owners have wanted more. I myself have dreamed about twelve miles, and I have actually attained ten. But it cost me 6 gallons an hour in a 37 by 9¼-foot boat. (These miles had 5,280 feet in them, and it was a two-stroke engine.) Such a flood of gasoline as this is quite effective in dampening one's ardor. I now run nine miles on about two and a quarter gallons, (the miles have the same number of feet, but the engine is a four-stroke), and I am thinking of going back to eight.



Sea Bird Tamerlane, Owned by Mr. W. G. Breeze, Vancouver, B. C.

The point I am coming to is this: I believe the automobile is going to be responsible for more rational cruising boat speeds, or, what is just as well, for making people owning cruising boats with rational speeds more contented with them. When one gets to riding in an automobile, the foolishness very soon dawns upon him of spending twice as much for an engine and three times as much for gasoline in a boat in order to get a mile or two more an hour. The automobile at normal speed runs say twenty miles an hour (perhaps it is faster in New York), but any time on demand at the opening of the throttle is ready to go twenty-five to fifty or even a hundred per cent faster.

After one has had automobile experience a mile or two more an hour means nothing to him, and he would not think of spending the money that would be required to get it above the cheaply-attained eight miles which is the cruising boat normal.

Appleton, Wis.

E. P. HUMPHREY.

ROLLER BOATS

In reply to Mr. L. P. Howe's inquiry in the October issue of *THE RUDDER*, he will find an article, "The Queerest Craft Afloat," by Herbert C. Fyfe, in Vol. VIII of *Pearson's Magazine* (London) for the year 1899, at page 335, which will give him a short but conclusive description of Roller Boats.

The article in question describes the "Bazin," the "Knapp," and the "Chapman" boats, and also one driven by man-power, invented by an American, Peter Beckman, who, after building his "Roller" in his back yard, paddled her out to sea, he and his son at the cranks and the sole crew; after 15 miles of it the wind took charge, he had to beg a tow, and as his "Roller" objected to this indignity and proved unmanageable, she had to be abandoned as a derelict.

There are many reasons why this type of boat must fail. They stand high out of the water and offer tre-

mendous surface to the wind, which makes the best use of that; there is not only considerable surface friction of underwater parts, but the rolling motion causes this skin friction to do its utmost to scoop up the sea and drag it along too, which is in effect much the same as a brake on a car wheel, but with this difference that the brake surface on the "rollers" is far greater in area. In the "Bazin" tank experiments the model performed well, but that was in a still water with no wind, the wetted areas were small and the friction negligible to a great extent. It was, however, foreseen by those well conversant with shipbuilding that, on a large scale, the boat must prove a failure owing to the reasons above mentioned.

I think your advice to Mr. Howe will agree with mine: "Drop roller boats like hot bricks, or your money will roll away at Dixie speed, which your roller boat never will."

There were also several discussions over the "Bazin" boat in the technical journals of the time, which will confirm the folly of wasting good money on such a useless project.

Omsk, Siberia.

HENRY G. READ.



Valkyrie. Owned by Mr. Schellenberg, of Yokohama, Japan

A JAPANESE RACER

AMONG other places in the world where the old *RUDDER* is always welcomed and safely berthed is Japan, and many the boat has been built from its pages in these islands. This is a picture of a smart little clipper, the property of Mr. Schellenberg, of Yokohama, who is at present debating between building a Sea Bird or Four Winds for cruising. Valkyrie has been successfully raced by her owner in the regattas of the Yokohama Y. C.



His Watch!

A SENSIBLE MANIFESTO FROM A CLUB THAT IS ALIVE

TO THE MEMBERS:

You will doubtless be interested in knowing what arrangements are being made for keeping our Club open during the Winter. Our Club is designed for all year service. The Winter attractions at our Club will appeal to such of our members as make it a practice to take advantage of them.

The Steward and Chef will be retained and will provide such meals as may be desired by our members, sub-

ject to telephone orders for special service or regular dinners. Give the Steward six hours' notice. You can always get short orders without previous notice.

Do you know the inside facts of the "Automobile Offer"? Notice of which was sent you some weeks ago. Sit right down and call up the Steward. He will tell you all about this opportunity for everybody to do a little to help the cause. It is the many helping a little and not the few helping a great deal, that will make our Club all that we desire it to be.

Are you one of those who have been inconvenienced on account of transportation facilities to the Club? A solution of this problem is at hand. The Commodore has been commissioned to provide these facilities in the shape of an automobile bus to run on telephone calls between Jefferson Avenue and the Club. This service will be free to our members and their guests. Call up the Steward and tell him at what time you will arrive at Alter Road. He will be there to welcome you.

Have you any ideas that you would like to see tried out for the upbuilding of the Club or improvements of Club house and grounds? It is the wish of the officers to furnish everything that the members really demand. If you have any demands, get back of them and push until you get them or find out the reason why. The officers will appreciate every knock that has the spirit of boost behind it.

Your entertainment committee has made definite plans for week-end entertainments and social affairs throughout the Winter. These entertainments will be in the form of dances, card parties, smokers, masquerades and other special events which will insure you and every one who attends a thoroughly good time.

For outdoor sport, it is planned to have skating either on the canal, or a rink to be made on the spacious ground back of the clubhouse. Within the clubhouse everything will be made cozy and comfortable to the Club members and their friends. The clubhouse is steam-heated, and on special occasions the huge grate fire will cheerfully burn. Checkers, cards, croquet and several other house games in addition to our pool tables and bowling alleys can be indulged in. If you have any suggestions to offer to the house committee in the way of indoor or outdoor games or sports of any kind, they will be gladly received by them for their consideration.

Inasmuch as a concerted effort is being made by your



Wreckage on the Beach After a Gale

board of directors and various committees, as well as considerable money expended for the development of the social life of the Detroit Motor Boat Club in making the Club a place where you and your friends can thoroughly enjoy themselves at any time you may desire to go there all through this Winter, we trust you will partake of it, and that you will manifest enough interest in the Club's welfare to assist in building it up, by taking advantage of these opportunities and privileges offered you and attend the Club.

DETROIT MOTOR BOAT CLUB.

* * *

[We recommend the perusal of this letter to some of our hibernating organizations.—EDITOR.]

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WRECKS IN ALGOA BAY

THE South coast of Africa has few good harbors, the majority of the places where ships have to be discharged being open roadsteads, where vessels are at all seasons of the year liable to find themselves on a lee shore. Many is the ship that has been driven ashore and wrecked in these treacherous bays. The pictures sent through the kindness of Mr. F. W. Wallace show one of these bad days for shipping in Algoa Bay. A sudden gale has driven the vessels from their anchors, and grounded them high on the sands.



Ship Coming Ashore in Algoa Bay. She Broke Up About 10 Minutes After This Photo Was Taken



After a Great Gale at Algoa Bay. Eighteen Vessels Ashore and Nearly 100 Lives Lost



Four Winds, Built by a Rudder Reader Above the Arctic Circle at Bodo, Norway

ABOVE THE ARCTIC CIRCLE

It is our proud boast that RUDDER boats have been built and are afloat everywhere in the world. Here is a Four Winds built at Bodo, Norway, by Mr. Agnar Kaarbo, an old and valued reader and correspondent. Bodo is a fishing port situated North of the Arctic Circle, and this boat was built in Lat. 67° 16' 18" and is, we expect, our furthest North.

FROM HONOLULU

HERE is the Galloping Mary just leaving the float of the Healani Yacht and Boat Club. The skiffs are known here as the Pearl Class, a model worked out by Mr. W. L. Lyle, a journeyman ship carpenter and amateur sailor;



Galloping Mary

they are very fast and able, even giving a good account of themselves in choppy seas outside. Those who sail and swim the year round here are about as much at home in the water as fish, and a ducking is nothing.

My own boat was the first cat here in several years, a RUDDER Ring Dove; but now there are some seven Wrens in the water, so there will be no lack of company in the cat line.

Honolulu, H. I.

A. N. SANFORD.

A NAME

I AM sending you herewith a note concerning the doings of a Russian ship which was in collision during a dense fog.

"While proceeding up river this morning the Russian steamer Welikli Knjas Alexander-Michailowitch collided with the steamer Lord Stewart at anchor below Crayfordness Point, during dense fog. Damage to Lord Stewart, starboard bow holed and starboard anchor broken; damage to former unknown."

It's a wonder the Lord Stewart kept afloat after being struck by a ship with such an awful name.

London, Eng.

S. H. LAMBERT.



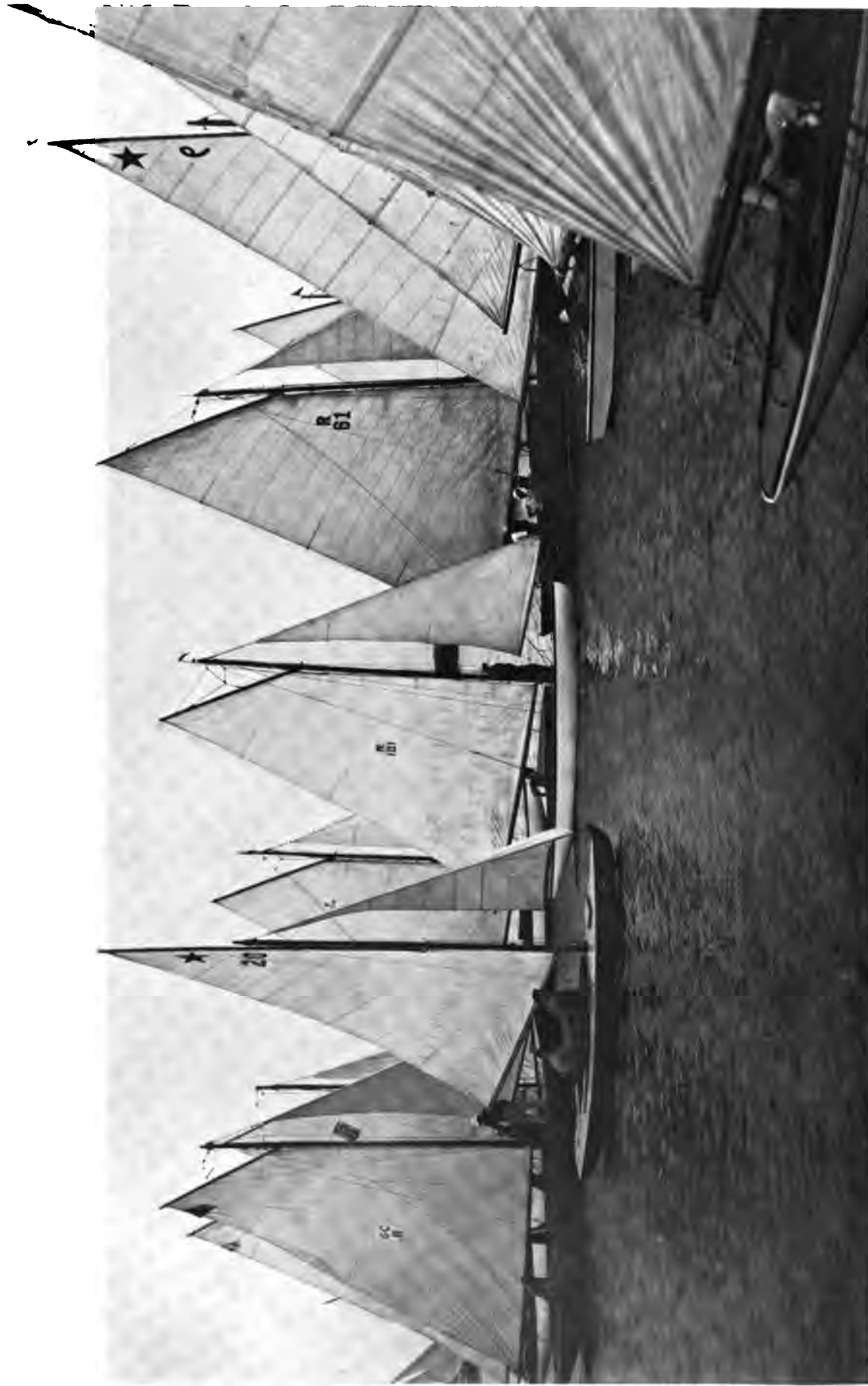
A Good Skate Sail

ROUND TANK CAPACITIES

FREQUENTLY designers, builders and owners have occasion to calculate tank capacities, and while figuring the contents of square or wedge-shaped tanks is simple the capacity of round tanks is not so easy to calculate. The following table was furnished by Janney, Steinmetz & Co., and shows the capacity of tanks per inch of diameter. Multiplying the length of tank by the gallons per inch given in the table gives the capacity.

Capacity of round tanks:

| Diameter | Gals. per inch |
|----------|----------------|
| 4 inch | .0543 |
| 5 " | .085 |
| 6 " | .122 |
| 7 " | .165 |
| 8 " | .217 |
| 9 " | .275 |
| 10 " | .340 |
| 12 " | .486 |
| 14 " | .666 |
| 16 " | .87 |
| 18 " | 1.1 |
| 20 " | 1.36 |
| 22 " | 1.645 |
| 24 " | 1.962 |



Close Work at Larchmont. A Light Air Start

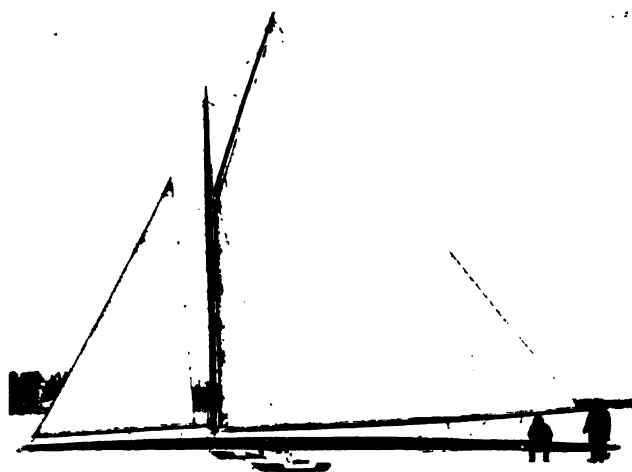
Photo by Walter

ICE-YACHTING

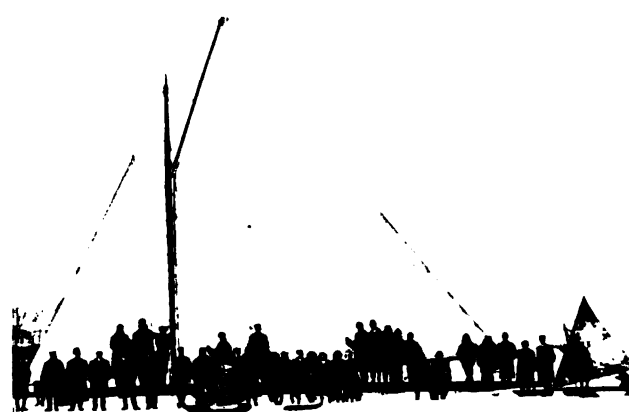
H. Percy Ashley

THE Winter is now upon us and every indication heralds plenty of ice-yachting. The new ice-boats being built in the East are of the 350 square foot class—the latest up-to-date design was printed in *THE RUDDER* of November, 1911. The middle West is producing the 450 square foot class. In fact, no boat is being built nowadays outside of a given class. This originated in *THE RUDDER* and has been followed throughout the world. In Long Branch and Red Bank, N. J., all the racing is done by boats of the 350 square foot class with the exception of the mosquito fleet of 150 square feet and under. Kalamazoo, Mich., and Madison, Wis., do most of the racing with the 450 square foot class. Orange Lake has had for years the 250 square foot class, while at Hyde Park, on the Hudson River, they race in the old-fashioned way. Take their third class, for instance. It varies in boats from 286 to 338 square feet, and the fourth class 245 to 197 square feet, without time allowance. This was rather behind the times, as all clubs that now race a mixed class give a time allowance of one second for the square foot of canvas. The two most important questions that have absorbed the minds of deep thinking and practical ice-yacht sailors are the sails and runners. Hollow backbone and spars have about settled the hull question, and the present style of cockpit seems to meet the requirement. Undoubtedly the fastest sail for the 350 square foot class has been shown to be a high narrow sail with a peak to the gaff of 65° and length of 12 feet 6 inches, a 16-foot 9-inch hoist, and an 18-foot boom. The jib is only a small triangular affair used as a balance. This makes a rig similar to a catboat with a spitfire jib. The center of effort in the mainsail is high and well forward, thus necessitating a greater distance between the center of the runner plank and center of mast. Hence compelling you to extend your cockpit aft of the end of the main-boom, and placing the rudder-post in after end of cockpit—which will prevent the steering runner from

lifting off the ice and causing the boat to act like a spinning top. It is true that these high narrow sails cause the lifting of the windward runner more than the old-fashioned low-cut sails, but the rise of the boat from the ice in the former style of sail is not as quick to go in the air in a puff and the return of the runners to the ice is slower and more gradual. There is no question of the great windward quality of these narrow sails. The draught must be very moderate in the mainsail and hardly any in the jib. The jib must be set away from the mainsail so that it will not shoot wind into the slight bulge of the mainsail near the mast thus causing it to back up. The hoist of the mainsail and jib must be roped in with wire rigging, which insures no stretch. This will compel you to hoist your sails with wire rigging, which is the only proper way to insure a perfectly flat-fitting sail so essential for windward work. Now as to the question of battens in the sails. Two for the mainsail is enough and the jib is better with none at all. Cross cut the cloths of your mainsail with seams running at right angles to leech. The jib cloths should always run parallel with jib-boom. I care not what your sailmaker says to the contrary. I have had dealings with many of them for over twenty years, and have but recently found one that is up to the mark in making a proper ice-yacht sail. These modern, up-to-date, hollow backbone and hollow spar ice-boats cannot be sailed in a puffy, strong breeze without weights on the runner plank strapped over the runners. Their weight varies from 40 to 65 lb, according to the lightness of construction of the hull and width of the cut on the ice of the fore runners. The modern ice-boat is much in the air during a race, but she is so well-balanced, and under the guidance of such experts as Captains Elijah W. Price, Jacob W. Edwards and Chas. I. Irwin, of Long Branch, who sail them like a seesaw, while forging ahead at terrific speed. The ice-yacht sailors from the middle West call them flying machines; but they have



Wolverine, 836 Sq. Ft., the Fastest Ice-Yacht in the World



Wolverine and a Few of Her Admirers

not yet got the knack of handling them properly. They could learn much from Captain Charley Irwin by seeing him sail the Georgie "Two Times" in a light breeze. Equipped with a pair of ice-spurs the size of miniature bayonets, a dead calm never fazes Charley, as with that trusty long left leg equipped with his wonderful ice-spurs the Georgie never stops even in a calm. I have heard it stated that Charley could make one-fourth of a mile with one shove, but I doubt it. Long may he be with us and continue to win races.

The runners of an ice-yacht are her vital spot for speed, as so much depends on them for fast time. I have seen all kinds of metal tried—and some of them with mysterious names—but when you come to sift them down it was our old reliable friend, soft cast iron either colored or mixed with a small proportion of some other metal. It has been masquerading lately under the name of a special material called silver and gold steel runner shoes; but it is still our old friend soft cast iron under a sweller name. You will find in the long run that soft cast-iron shoes with a cutting edge of 45° on each side, are the most reliable. It is up to you how well they are



Toot-Toot, 350 Sq. Ft., of Madison, Wis.

made and finished, and it is a mighty nice and skilful job to finish a set of runner shoes correctly by hand. Believe me, it will take years of experience. But if you can have access to a fine metal planer and the experience of some old experienced machinist, your way is pretty clear to get a first-class set of shoes. For an ice-yacht of say, 350 square feet the fore runners should be a little under 6 feet, including wood; the depth of the shoe about $3\frac{1}{4}$ inches. The fore and aft cutting edge must have a downward curve of $\frac{1}{8}$ inch, starting gradually from nose of runner shoe running aft. The deepest part of this curve is at a point directly under the riding bolt. The curve is greater aft than forward of the riding bolt point. After planing the sides and top of your shoe, place your shoe with the cutting surface up and clamp on the movable bed plate so that the part under the riding bolt, when clamped in place, will have a depression of $\frac{1}{8}$ inch. After the plane has been run over it until it has been brought down to the proper shape, unclamp, and the shoe will spring back the $\frac{1}{8}$ inch and



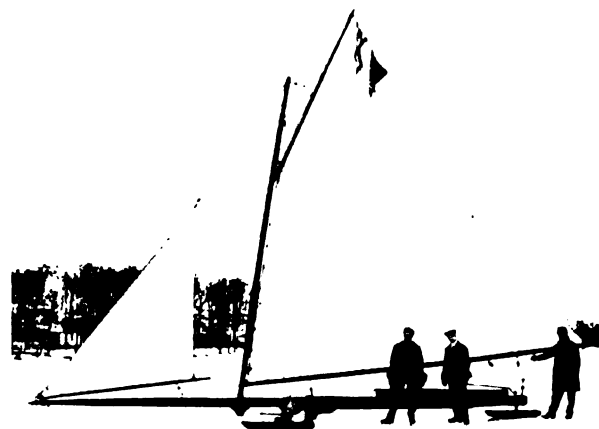
Line-Up for Race at Madison, Wis.

give you the true forward and aft cutting line on the ice, with the $\frac{1}{8}$ -inch downward curve so much desired.

It is always better to have two sets of runners for each boat—one for hard, and the other for soft ice. I have been advised by a scientific man, and a prominent member of the Stockholm I. Y. C. of Sweden, that last Winter a severe test was given to steel, soft cast iron, and bronze shoes by the club. The result was, that the soft cast-iron ones were the best on hard ice, although the bronze shoes made the fastest time over soft ice. As most of you old-timers know, the soft cast-iron shoe grows very hard after much sailing. The theory is that the particles of cast iron are moved closer together by the rapid friction against the ice. It has been noted for many years of sleighs used for racing downhill that those equipped with soft cast-iron shoes won over those shod with steel.

I gave the lacing of the hoist of the mainsail to the mast a thorough trial last Winter, and found that it was a great improvement over mast hoops in close windward work. Either $\frac{1}{4}$ -inch wire running rigging can be used or a high quality of sash cord that has previously had all the stretch taken out of it. Don't reef your racing mainsail. It spoils it. Reefing points can be done away with, and if a reef is required it can be laced in through the reefing grommets, and you will find that the only reefing grommet must be hand-sewed in around a galvanized ring. With the mainsail laced to the mast, and snap-hooks on the jibstay, you will find it a very easy matter to remove your sails by uncoupling the peak and throat halyard, unjointing the gooseneck and placing the suit under cover. A first-class suit of racing sails for a 350-footer costs you nearly \$100, and consequently must receive the best of care.

The best place to keep them is in a perfectly dry, well-aired loft in a sail-bag suspended by a thin, strong



Princess II, 450 Sq. Ft., of the Madison I. Y. C.

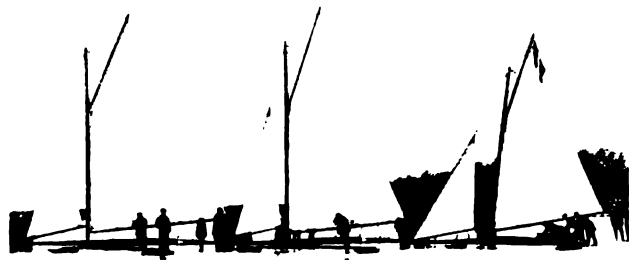


Line-Up of Ice-Boats on Gull Lake, Michigan

wire so mice will not make a nest of them. Around the closed neck of the bag secure wrapping paper so as to insure no occupancy by wasps to build a nest. I have seen sails that have been kept perfectly good for over ten years this way, and a patch of clear, clean ice is the ideal spot to roll up a sail preparatory to stowing it away.

I have received several letters inquiring about a flying start for a race. There is nothing in it but confusion. It has been thoroughly tried on the Hudson River years ago, and was a failure. You will have to use the line-up headed to windward, and draw for the windward position. In racing all Winter with one class, let the leeward boat take windward position at next race until all have had the desirable position of the windward berth at the starting line—an open wooden cage made of barrel hoops pointed red and of the same formation as the cages used on lightships. These cages are mounted on a light pole surmounted with a red signal with a square white center, as used in the United States Navy for signal purposes. This flag can be seen more plainly and at a greater distance than any other signal or club burgee. If run down, this turning stake will not wreck your boat if run into. You are only disqualified, and you still have your boat intact.

Years ago in my younger days a turning stake was made by taking a barrel, filling it with ice, snow and rocks, and pouring water upon it until frozen solid. A Christmas tree decorated with American flags completed this outfit,—and it was some ice-yacht destroying turning stake. The barrel was soon discarded, and a Christmas tree with flags planted at the turning points of a course. This style was no joke to run into, so I was appointed as chairman of committee to get up a practical turning stake. They still hang to the Christmas-tree turning stake decorated with American flags in the West, but there is a future in front of them for ice-yachting, and the first step in the right direction was the production of Wolverine, from Kalamazoo I. Y. C. She made a windward and return race of 20 miles in 40 minutes flat, and it took four legs to make that distance. That is ahead of Jack Frost's record for the Champion Pennant of the World, which stands to ice-yachtsmen the same as the America's Cup to



Pedro, Hilo and Princess II, Contestants for the International Cup

the yachtsmen of the sea. It is the supremacy of the frozen surface in the world, and has been raced for for forty years, and is now held by Colonel Archibald Roger's Jack Frost, carrying 754 square feet of canvas, formerly of the old Hudson River Club, but now flies the burgee of the Hyde Park I. Y. C. on the Hudson just above Poughkeepsie, which is the birthplace of the ice-yachts. Commodore D. C. Olin's Wolverine carries 836 square feet. Although Wolverine carries 82 square feet of sail in excess of Jack Frost, she would not have to give the latter ice-yacht any time allowance. The Frost is the only first-class ice-yacht that would stand any chance with Wolverine. It certainly would make a grand race; but the Hudson River of late years has been in no condition to hold a windward and return race for 20 miles, and according to the Champion Pennant of the World racing rule for first-class ice-yachts, the challenger must race over the course sailed by the holder. This course is on the Hudson River above the Poughkeepsie bridge, 20 miles to windward and return, generally about four legs. I know the West and middle West look longingly for this pennant, and it is up to Wolverine, as there is no ice-yacht in the East, large or small, that would have a ghost of a chance in sailing against Jack Frost with



A Few of the Members of the Kalamazoo I. Y. C.

Colonel Rogers to sail her and Chick Van Loan tuning her up to racing pitch. In fact, there are no large ice-boats whose speed in any way equals these two.

There has been much talk in regard to ice-yachts with gasoline engines in them. The description and photograph of one built several years ago by the late Commodore Henry H. Higginson of the Orange Lake Club, that was propelled by a wheel equipped with picks, appeared in THE RUDDER. There is one assembled now by a very practical man. This craft will be drawn by a flying machine wheel and driven by a light, powerful gasoline engine. The propeller wheel is in front of the boat and pulls it. The hull is of the side-bar type with short runner plank. The designer claims any old pace up to 90 miles per hour. She has as yet not been tried on the ice. This I know, that the hull is built by a practical man of long experience with ice-yachts. The engine and fan wheel are put in and built by experts in the flying machines, and she ought to go very fast. I will have a try at her this Winter at any rate. Several of these boats have been built in the past year or two, but this is the first one by practical ice-yacht men. If you live in the vicinity of New York City and want to see



Flit and Flit Jr., of Madison, Wis.

some good ice-yachting, go down to Long Branch, N. J. There are two flourishing ice-yacht clubs—the South Shrewsbury, and the Long Branch I. Y. C. on Pleasure Bay. The fleets are large and fast, with most of the crack racing boats of the 350 square foot class. Within a few miles is the North Shrewsbury I. Y. C., situated at Red Bank, N. J., on the Shrewsbury River. Most of their racing is done with the 350 square foot class also. The rivalry between these three clubs is very strong for the championship of the East. The season there last year started in the latter part of December with a large field of fine, smooth ice, but by the middle of January clear water appeared, and no ice was formed the balance of the season. The racing days were few.

In the vicinity of Red Bank and Fair Haven much racing is done with the small yachts of Class A. The rivalry of these mosquitoes, as they are called, is very keen. These little ice-boats carry 150 square feet and the runner plank is about 10 feet over all. I have seen them carry a crew of three in a stiff breeze. They are a cheap and handy little craft and can be raced on thin ice owing to their light weight. Dr. W. H. Stanbrough, of Orange Lake, has received the patent for distributing the weight to windward of an ice-yacht in the form of shifting ballast. It is accomplished by changing the lines of support from an isosceles triangle into a scalene triangle, thus moving the center of gravity of the boat to windward of the line of stress or lee support. This is accomplished by a hinged backbone that forces the rudder runner to leeward by the pressure of the mainsheet. Thus the rudder runner as well as the fore runner are to leeward of the backbone. The Doctor is building a 250-footer from this patent and says he can carry a high cut sail of that dimension with an 8-foot plank. A boat of 250 square feet carries a 11 or 12-foot runner plank. Dr. Stanbrough has had years of experience in building and sailing ice-craft, and invites the doubting ones to come to Orange Lake and sail with him this Winter and be convinced. Out at Patchogue, L. I., all the crack scooters of the Patchogue Scooter Club are tuned up to concert pitch. Commodore F. C. Thurber's Elmer is probably the fastest scooter on Long Island. Three years ago Commodore Thurber, with his scooter Eagle, amazed the members of the Orange Lake I. Y. C. by beating the ice-yachts of Orange Lake for a cash prize of \$500. The ice-yachts had to sail 20 miles to the scooters' 10 miles. The scooter Eagle covered the distance in 35 minutes 52 seconds in a fairly strong

breeze. Eagle is now owned by James O'Brien, of the Long Branch Club.

The difficult part of an ice-yacht to obtain is a good runner plank. The heart of the wood must be on the top side of the plank, which insures no downward sag toward the ice and gives it a good swing while sailing over an uneven surface. Butternut wood is the best, then basswood. New Jersey poplar is much used on Pleasure Bay, and the Shrewsbury River. White wood and spruce can be used. The best way is to select a tree standing. Cut as the tree is free from sap, saw as soon as possible, and season under fresh water for a year. The plank can be got out in the rough before it has time to warp or check after sawing, and sunk in the river or lake at least one year. The ideal place is under a dock. Nail boards across the piles under water. Pass your plank under them and lash fast.

I quote from remarks made by Commodore T. H. Grant, an authority on ice-yachting on the Shrewsbury: "The faster an ice-boat sails, the more the wind draws in ahead. This is the reason that an ice-boat can beat to leeward. The lighter the wind the more a boat has to be kept up to it, and the stronger the wind the further off the course may be laid. The same principle applies in sailing on the wind—a considerable speed draws the wind in ahead, so that the boat has to be kept off about five points from the true direction of the wind in order to make satisfactory headway. It is more than poor judgment to starve an ice-boat of wind by close pointing. The wind that hits a sail is the resultant between the velocity of the wind, and the speed of the boat. Graphical analysis seems to show that the average angle of the sail to the line of the backbone should be one-half of the angle which the resultant wind makes with the backbone in order to attain the maximum driving force on the line of an ice-boat's course. If this is approxi-



Yellow Kid, 280 Sq. Ft., of Madison, Wis.

mately correct it points out the necessity of tending the sheet on different points of sailing. As there is a limit to the amount the sheets may be eased, the sails should be proportioned to give a good out-draft on moderate easing sheets."

I quite agree with Mr. Grant on the sheet tending, as in up-to-date racing as a rule the course is triangular, and sailed over several times to make the total mileage, and a smart sheet tender is an essential factor in winning a race. One of the very best sheet tenders in the East is Charley Blair, of the Long Branch Club. A good sheet man was lost as he advanced to professional sail master for James O'Brien's Jack Frost, which boat has won many races in the past three seasons. With Captain "Lishe" Price as skipper and Charlie Blair as sheet tender an ice-yacht crew cannot be duplicated.

Our old friends at the Kalamazoo I. Y. C. of Michigan, are all ready for another supremacy of the middle West. Last Winter several spirited races took place. Emil Fauerbach challenged with Princess II from Madison, Wis., and lost. From such stuff as Mr. Fauerbach real ice-yachtsmen are made. He is known as the Sir Thomas Lipton of ice-yachting. He does not know the meaning of the word defeat, as for several seasons he has brought a new boat each year down to race against the ice-yachts of the Kalamazoo Club at Gull Lake. He has challenged for the Hearst and the Stewart trophies this year with another new boat. Commodore D. C. Olin, the noted ice-yacht skipper who has piloted the big Wolverine to her numerous victories and beaten the world's time in a 20-mile course to windward and return, is building a new 450-footer to compete against the Muskegon Club at Madison, Wis., upon their arrival at Gull Lake. Commodore Olin is a master hand at the tiller of any class of these flyers of the frozen surface. The 450-footers Hilo and Pedro will have to look lively to their past laurels as the new boat makes its appearance on the race course. The size of the big Wolverine with her 836 square feet of canvas is plainly shown in the accompanying photograph compared by the size of her admirers, who are grouped around her. Commodore Olin is at his usual place at the end of the tiller, where he always is as the pride of the West rushes to victory. There is no more enthusiastic racing crowd in the country than at Kalamazoo, under the guidance of Commodore D. C. Olin and C. S. Carney as secretary and treasurer, with a membership of forty, every one of whom are rated in Dun and Bradstreet's commercial reports. Good men, good ice, good racing, leaves no room for want in an ice-yachtsman.

In the race last Winter for the Wm. R. Hearst International Trophy for the 450 square foot class the competitors were: Pedro, E. W. Morton, skipper; Hilo, Commodore D. C. Olin, skipper; Princess II, Wm. Bernard, skipper. The course, two points, five times around, total distance 20 miles. The first two boats were from Kalamazoo, Mich., while Princess was from Madison, Wis. Hilo won two races in succession, best two out of three; time 40:28 and 44:30—and that is mighty good time.

Race for the massive Stewart Cup. Distance 20 miles, ice soft. Entered: Wolverine, 836 square feet; Princess II and Hilo, each carrying 450 square feet. Won by Wolverine, time 1:01:26. Princess second, 1:07:17. Hilo retired at last lap and was then one round behind Princess. Second race for same trophy, but with good ice and breeze for the 20 miles, won by



Flt. 250 Sq. Ft., of Madison, Wis.

Wolverine, 57:05; Hilo, 1:02:25; Princess II, 1:04:00. So the two trophies still remain with the Kalamazoo Club. In the first race, won by Hilo, in nature of course of 20 miles the time is remarkable, and I would like to hear of any better time having been made by an ice-yacht of her class at any club race guaranteed by the regatta committee.

The Grosse Pointe I. Y. C. on Lake St. Clair, Mich.—Hornet II, with Ed Rooney at the tiller, won the International champion flag and the first heat on the Walker Cup.

They certainly have a superb place to go ice-yachting at Madison, Wis. The town is on an isthmus, situated between Lake Mendota and Lake Monona. On the former lake, where most of the ice-yacht races take place, a course of nearly 5½ miles straight without a turn can be laid out. On the latter lake a sail can be made straightaway of 3½ miles. Four miles from Madison, which is the home of the Mendota I. Y. C., is Lake Wabesa, which is 3½ miles long. Why, a place like that with ice-yachting facilities right at your back and front doorsteps, should have the largest and finest fleet in America. The facilities could not be better with every street on each side of the town ending at one of the lakes. Oh, that we had a place like this in the East, where we from New York City have to go 60 or 70 miles to the nearest places, and most of it on salt-water ice at that. Why, Orange Lake, which is 60 miles from New York City, where so much racing (with some of the finest ice-yachts in the world) was formerly sailed, is only 1 1/16 mile long and ¾ mile broad. Course diamond four times over to make 12 miles.

Mr. C. H. Dillon writes as follows on ice-yachting in Madison, Wis.:

Ice-yachting at Madison is in a rather peculiar situation. It is a contest between the Eastern or Hudson

River type, as we call your craft, and the Madison type, an ice-yacht with side-bar hull and raking mast. The Madison type has been built by Mr. W. P. Bernard of this city for some thirty years, and up to a few years ago everybody followed in his wake. Dr. K. T. Wood was the first Madison ice-yachtsman to look seriously on the Eastern type, and he built his first ice-yachts of that type from RUDDER designs. They were very fast in medium weather but were airships when the wind blew. Dr. Wood, after working three seasons, succeeded in winning the Championship in the 250-foot class on the Madison Lakes. However, there were no Bernard boats in this class. The Bernard craft were supreme at that time in the larger classes and won easily over every craft that visited Madison, although a number of them were ice-yachts on which no expense had been spared to make them the very best that money could buy. Personally, I have maintained for a good many years that an Eastern type ice-yacht, properly built and sailed by one of our best skippers, would easily win out over the Madison type in a season's racing.

In 1904 Mr. Emil Fauerbach took up ice-yachting and made trips to Gull Lake for two successive seasons with Princess, a 350 square foot craft of Mr. Bernard's construction. Although the ice was never sufficiently clear of snow during those seasons to hold the full series of races, the story goes here that Princess made a very good showing in what racing there was, accounts of which appeared in THE RUDDER. The long, tiresome waiting for racing conditions on Gull Lake is what discouraged the Madison ice-yachtsmen and not the speed of the Gull Lake craft. But they will be there this Winter.

The season of 1910 and 1911 brought with it the most perfect ice-yachting conditions ever seen on the

Madison Lakes. Up to this time the Bernard ice-yachts had easily won over all the Eastern type craft sailed at Madison; still, there were a number of the followers of the sport who believed that there was nothing in the raking mast of the Madison type and that the central backbone without side-bars gave the best construction for easy riding and sail carrying. After experimenting for two seasons, Mr. Perry Fess, an engineering student in the University of Wisconsin, built an Eastern type ice-yacht of his own design, called Toot-Toot, and started after the Bernard boats. The best craft of the Madison type which competed with Toot-Toot, were Yellow Kid, a 280 square-footer owned and built by Mr. Bernard, and Isser, also a 280-foot Bernard boat, owned by Mr. L. M. Hanks, of the Mendota Y. C.

A long series of races were sailed on Lake Mendota for the Championship of the Madison Lakes. A number of other craft of both types sailed in this series, but during the first part of the season Isser and Yellow Kid won most of the races, and soon all the Eastern type craft dropped out except Toot-Toot. After spending the first weeks of the racing getting his craft tuned up, Mr. Fess began to win races and won most of the events as long as the ice remained hard. When the ice began to get honeycombed on top Yellow Kid picked up a few more firsts, and the season closed with Toot-Toot winner by only two points.

Of course you have the story of the quick defeat of Mr. Fauerbach's Princess II at Gull Lake last season. Princess II. was built several years ago by Mr. Bernard and has had some very hard use. She was set up on the lake at the opening of the season and sailed in a few races and her performance made it plain that she was not up to the usual standard, as she was beaten by some of the smaller craft. On returning from Gull Lake she was again beaten by the smaller boats until she was fitted out with new sails and the old sails recut. After that she won several races with either suit of sails, but was not considered in the Championship series because of her long absence on the Gull Lake trip.

As outlined so far the Mendota Y. C., an organization which has formerly only carried on Summer sailing, is to take charge of the ice-yachting racing this Winter. Several members of this club are going in together and are building a 450 square foot craft from designs of H. Percy Ashley to give the Eastern type a good try-out. If all goes well this craft may be sent to Gull Lake. Mr. Perry Fess is rebuilding Toot-Toot to get rid of some excess weight and expects to make her faster in this way. Mr. Emil Fauerbach expects to have a new 400 square foot ice-yacht built by Mr. Bernard, which will be sent to Gull Lake with the writer as skipper. In spite of his defeat at Gull Lake, Mr. Fauerbach still places his faith in the Bernard ice-yacht with raking mast, big jib and low-cut sails. The new craft will look very much the same as the first Princess, having the same extreme rake to the mast and long length ahead of the plank. Of the old craft there will be Princess II, Yellow Kid and Isser, of the Madison type, and Toot-Toot, Flit and Northern, of the Eastern type. Flit and Northern are 250 square foot ice-yachts of Dr. K. T. Wood's production.

The officials of the Mendota Y. C. are as follows: Commodore, L. W. Burch; vice-commadore, C. B. Chapman; secretary, C. H. Teesdale; treasurer, George McConnell; fleet captain, Rolf Thelen; measurer, C. D. Dillon; ice-yachting committee: C. D. Dillon, chairman; Lew F. Porter, Harrold Cary.



Isser, 280 Sq. Ft., of Madison, Wis.

The question of holding an ice-yacht meet here this Winter will be brought up at a meeting of the club. It is unfortunate that we are so far away, as I should like very much to see one of your Long Branch boats of 350 square feet sail in some of our races. As I said before, I believe the Eastern type that appear in THE RUDDER are the proper system; still I believe the Bernard boats are fast in the hands of the Madison boys; they are like wild beasts to the person who is not used to them. I have a presumption that the first and second in such a race would not be far apart, and that the Long Branch craft might even find difficulty to pick off the latter position should there be more than one Madison boat in the race. You see we don't live so very far from Missouri, and so come out and let us be shown. The Madison boats are cheap, partly because the builder makes very little out of it; he only builds two or three during the Fall after his steamboat business is closed and he has nothing else to do.

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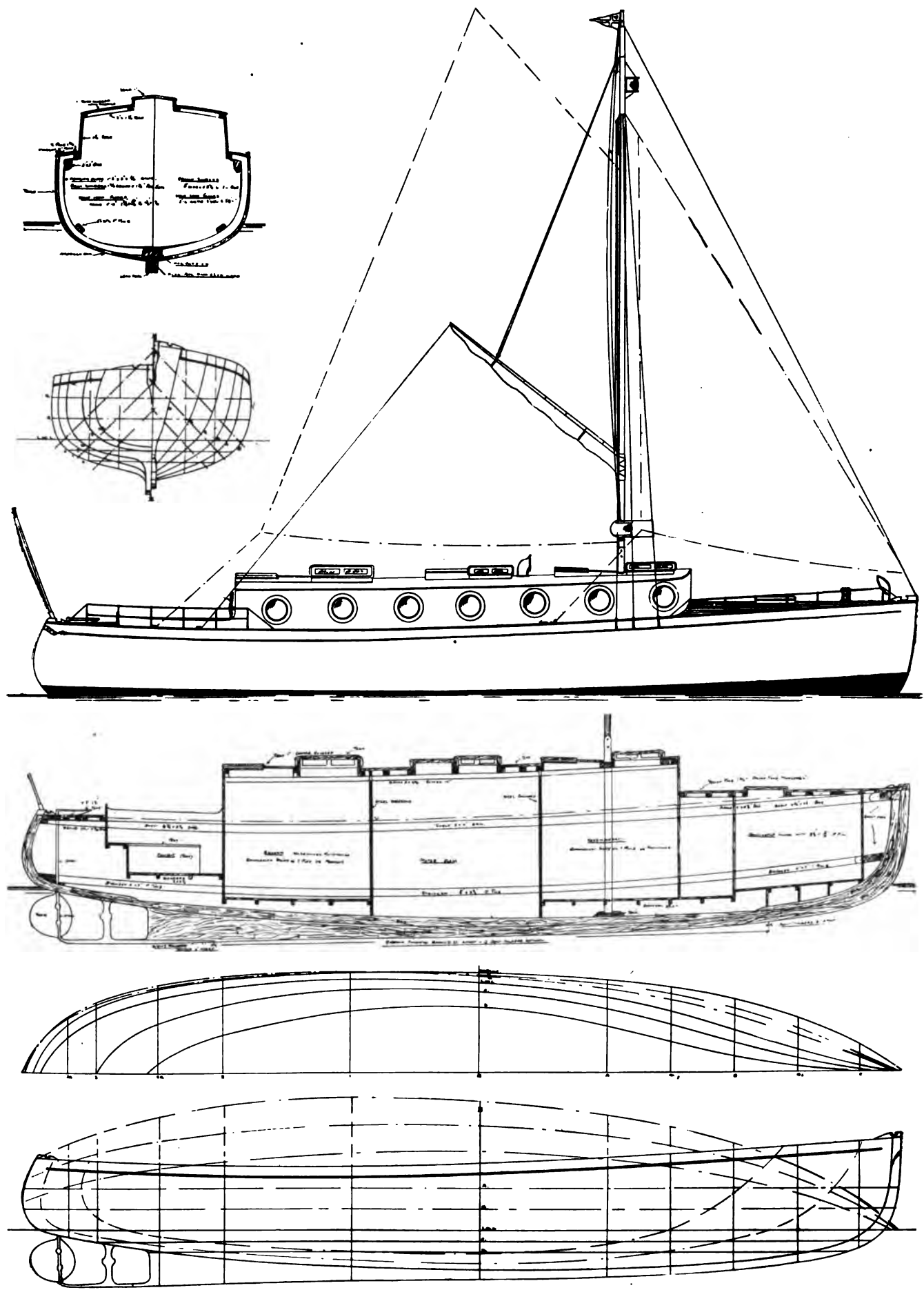
There is no place like home, and that home is down at the end of Pleasure Bay just back of Long Branch, N. J., with two ice-yacht clubs, of which they have seen fit to give me the honor of being a life member years ago. One of the most flourishing clubs in the East is the Long Branch I. Y. C. Its membership is large and influential, and is increasing all the time. Among the noted flyers of the 350-foot class are: Blanche, Jack Frost, Imp, Drub, Isabel and Eagle. The good ice-yachtsman and genial Edward W. Ried is commodore and Captain Wm. A. Seamon vice-commodore. Just across the narrow

neck of Pleasure Bay, at Shallow Point, is the commodious home of the South Shrewsbury I. Y. C., presided over by Commodore 'Chas. J. Gibbons and Captain Charles L. Edwards, vice-commodore. Some of its racing craft of the 350-foot class are George II, Princeton, Hazel L., XI.L.N.C., the new Woodrow Wilson, and Rainbow, a new Buckhout built boat. The North Shrewsbury I. Y. C., of Red Bank, N. J. has a fleet of about forty boats, the cream of which race in the 350-foot class. The club officers are: Commodore, Thomas H. Grant; vice-commodore, James B. Weaver; Irving Hance, treasurer. In their vicinity are several clubs for small boats of 150 square feet and under. The principal small boat club is called the Independent I. Y. C., formed by the younger element of ice-yacht enthusiasts, and I can vouch that it is some racing in the A class, as these midget boats are called. Many of the boats are made and rigged by the boys themselves and do them great credit. Of such material are the real ice-yachting skippers made, and every one of them of note has started his career by hanging around the large ice-yachts getting points and building small ones in his boyhood days.

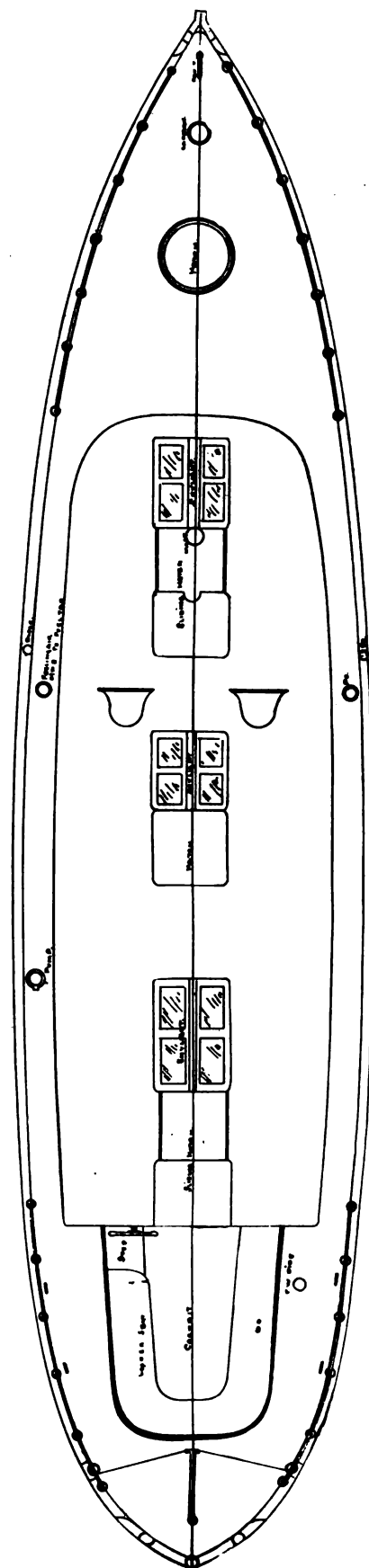
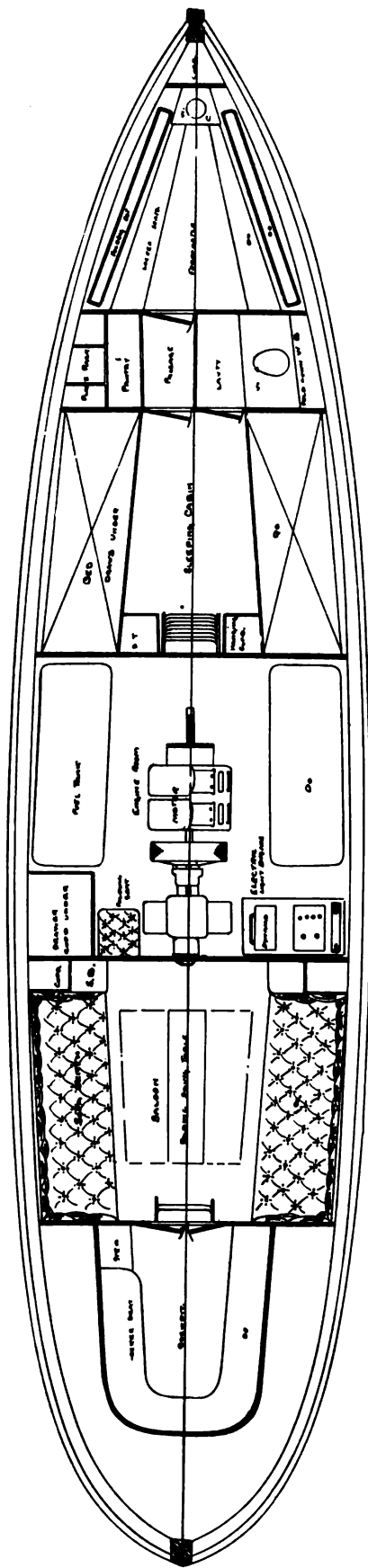
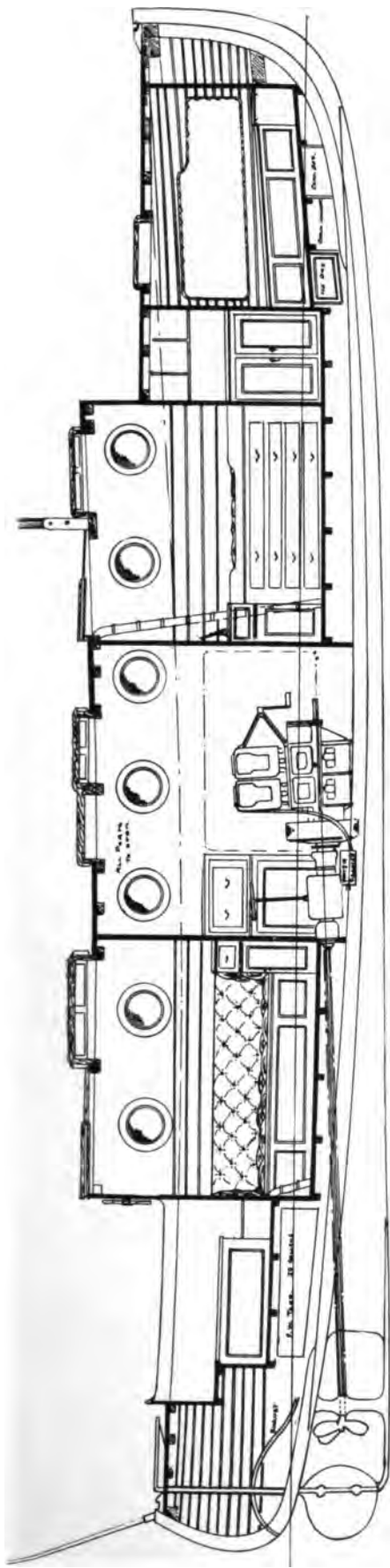
The Knickerbocker ice-yachtsmen at Cow Bay, L. I., are awaiting with impatience the advent of ice. The champion Knickerbocker is in racing trim, under the supervision of Henry Stevenson and George Rae, the sunbeam of the ice. She will have a new set of runners and plank, with other minor improvements. R. E. Dusenberry will be out with his Ice Baby, Louie H. Zocher with Leak, H. B. Hulse with Bertilda, and W. Butler Duncan with Manhasset. All these boats are of the 300 square foot class.



Auxiliary Schooner Seriola, 46 Ft. O. A. Designed by Mr. B. B. Crowninshield and Built by Rice Brothers, for Mr. Joseph S. Bigelow, Jr., Cohasset, Mass.



Designing Competition. Plan of Forty-Footer, Submitted by R. K. Fry, Southampton, England



Accommodation Plans of Mr. Fry's Design

NELLIE F. II

NELLIE F. II is one of the boats of last season, built from designs by Bowes & Mower, of Philadelphia, Pa., and she shows the latest development of the well-known Ilys type which has been made a specialty of by these designers.

The craft is 51 feet over all, and is equipped with a six-cylinder, 40-h.p. Standard engine, which drives her at a speed of 14 miles per hour.

Her arrangement plan is unusually well worked out and would be hard to improve upon in a boat of her size as it has many very desirable features, and the details of lockers, etc., are worked out to give the greatest possible convenience.

The main cabin is located aft, and is reached by a companionway from the after deck. The companion slide is set on top of a raised hatch which gives added light and headroom and an appearance of unusual roominess to the main cabin. The cabin has extension transoms on either side with alcove lockers and book shelves above the transom tacks.

The galley is just forward of the main cabin, which is a most convenient arrangement where one man both cooks and serves. A large ice-box is on the port side with a shelf and glass racks above it. The galley stove is a Shipmate placed on the starboard side with the stove pipe carried up into the funnel over the engine room. The dresser and sink are set against the forward bulkhead with lockers under them and the dish lockers are on the after bulkhead.

The engine room is unusually well ventilated, having two ventilators in the deck which drive the air in, and the draught through the stack carries out the hot and foul air. The engine exhausts into the stack and the exhaust creates a constant suction of air up the stack

when the engine is running. The direct-connected generator for lighting the boat is installed on the starboard side of the engine room just forward of the crew's toilet room. On the port side is a transom with tool lockers under and a folding pipe berth for the engineer over it. Forward of the engine room is a vestibule with a companionway leading to the deck on the starboard side. Opposite, on the port side is a toilet room with doors opening both into the vestibule and also into the owner's stateroom.

The owner's stateroom occupies the full width of the boat and has wide berths on either side with bureau and clothes lockers at the forward end. A small deckhouse over the stateroom gives an abundance of light and ventilation.

The fore peak is occupied by the fresh water tank with space over it for ground tackle. The gasolene tanks are under the aft deck and have a capacity of about 400 gallons.

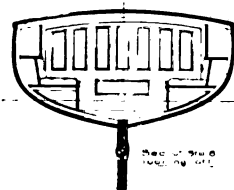
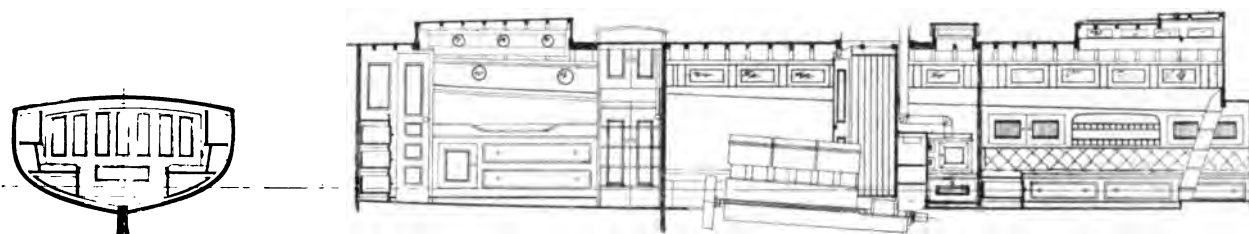
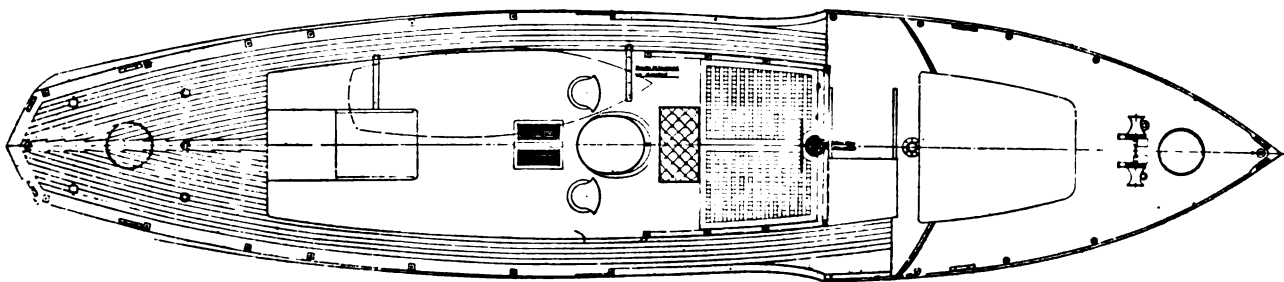
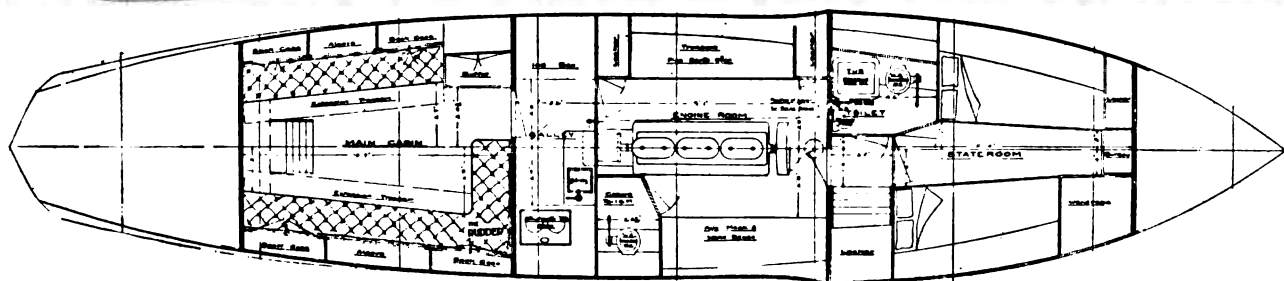
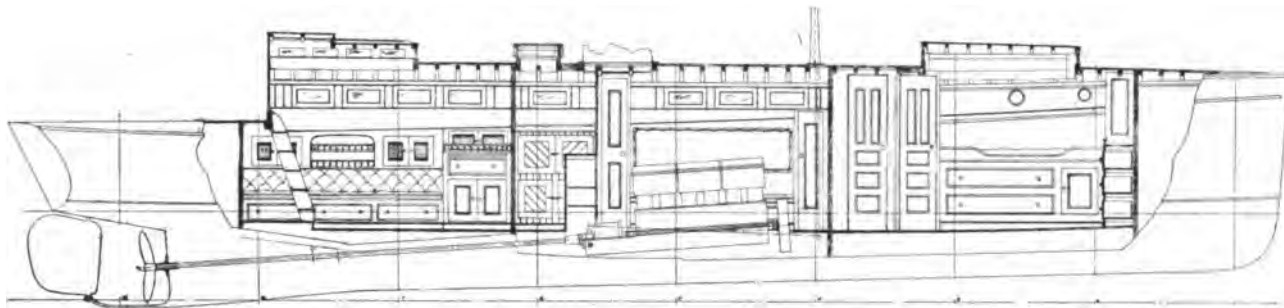
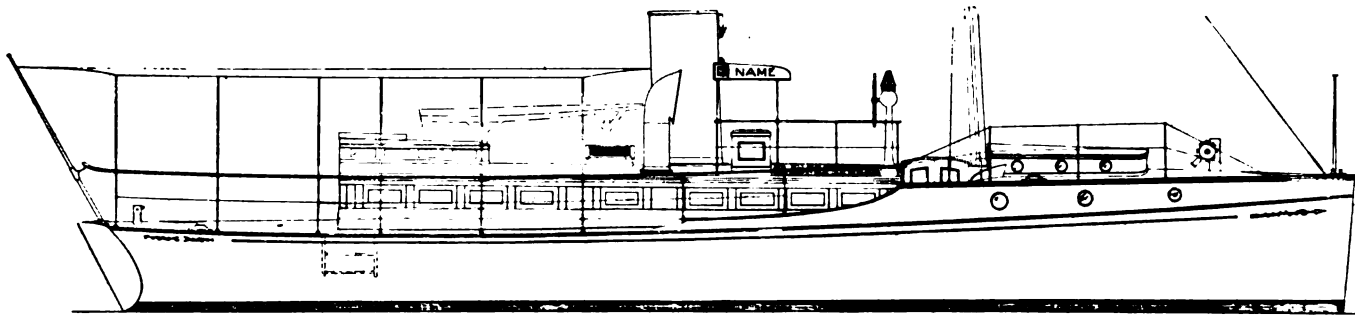
The deck arrangement is very comfortable, as the after deck is large enough to accommodate a number of wicker chairs, and the passageways in either side of the house are wide to allow easy passage to the bridge. The boat steers from a bridge forward of the stack. The engine control is carried to the bridge so that the boat can be handled by one man, but there is also an engine room telegraph so that the engine can be handled below when the owner is in charge on the bridge. A single mast is fitted forward of the bridge and sails are provided that are adequate to handle the boat in an emergency. A 10-foot power tender is carried on davits on the port side.

The general dimensions are:

| | |
|-------------------|------------------|
| Length o. a. | 51 feet 0 inches |
| Breadth | 10 " 6 " |
| Draught | 4 " 0 " |

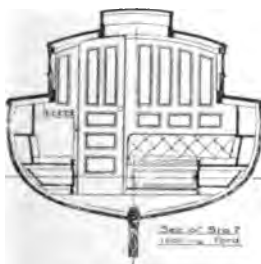


Nellie F. II, 51 Ft. O. A., 40-H.P. Standard Engine

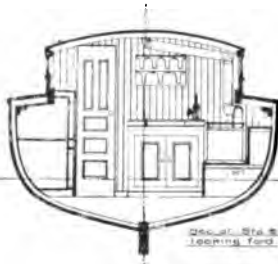


Sec. of Ship
looking aft.

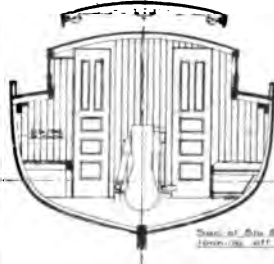
Inboard Elevator Necessary Side.



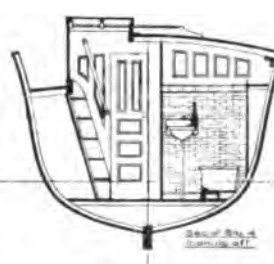
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looking aft.



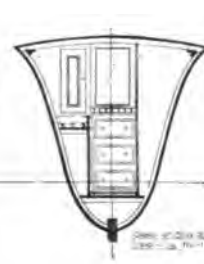
Sec. of Ship
looking forward.



Sec. of Ship
looking aft.

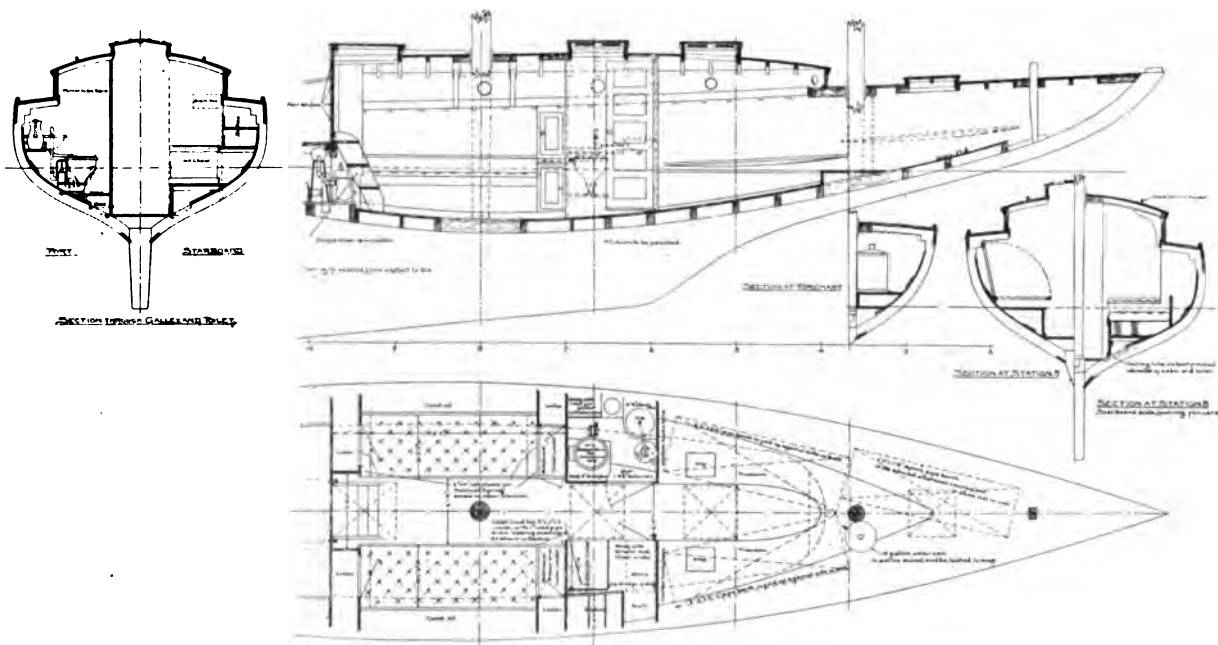
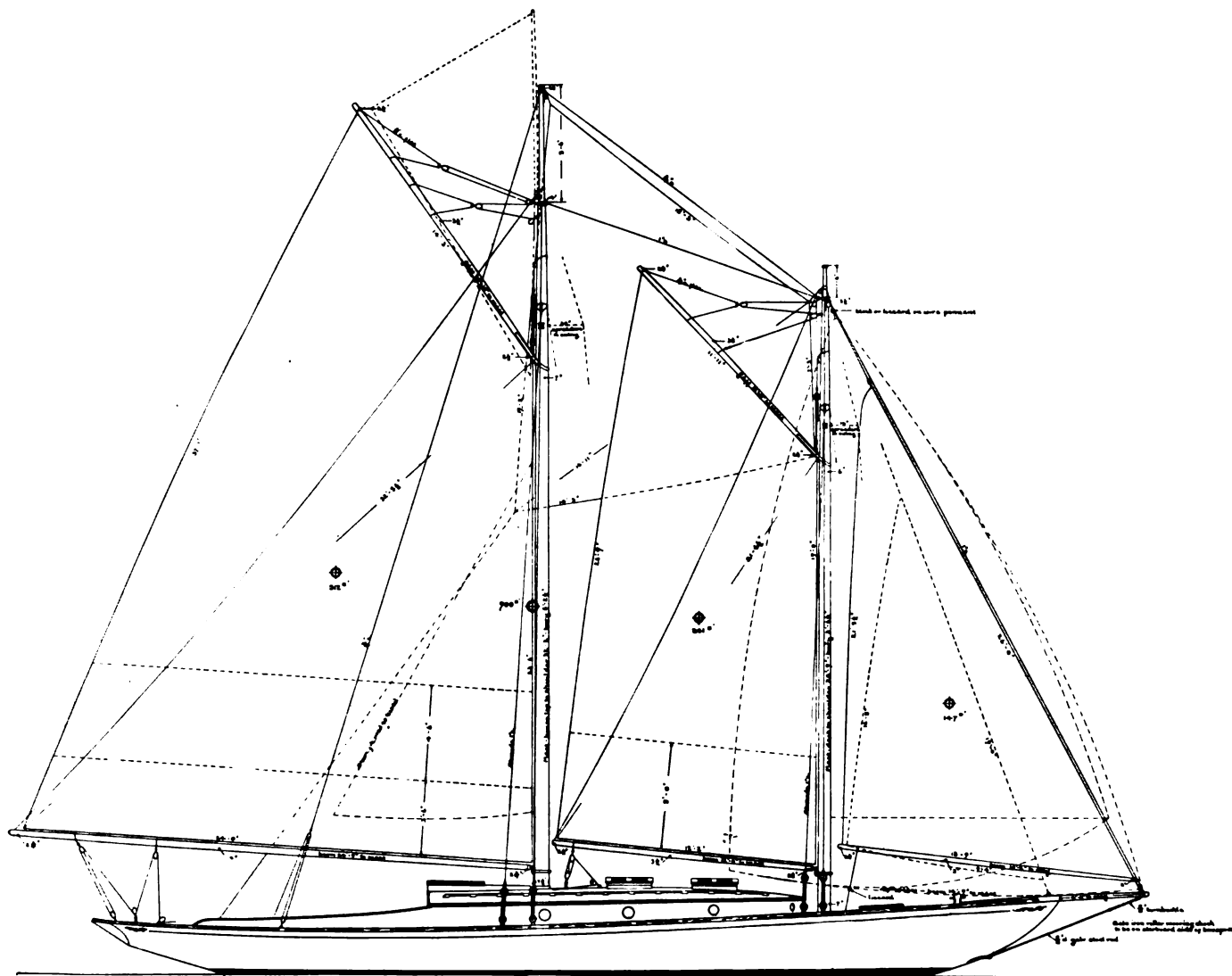


Sec. of Ship
looking aft.

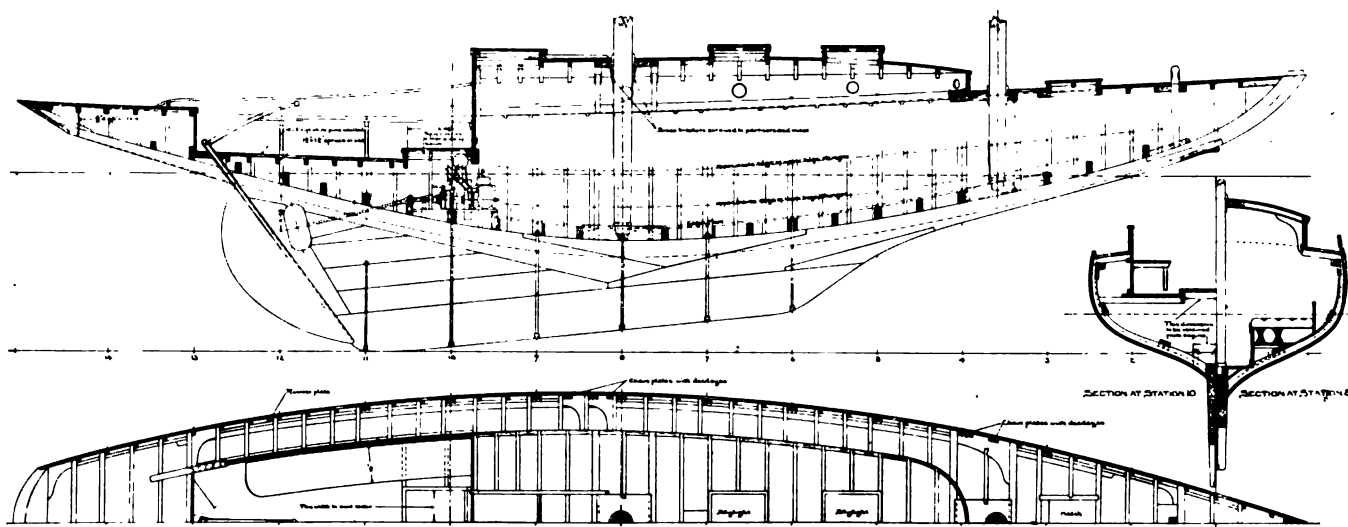


Sec. of Ship
looking aft.

Fifty-One Footer, Nellie F. II. Designed by Bowes & Mower, Philadelphia, Pa.



Heron, Forty-Five-Foot Auxiliary Yawl. Designed by Mr. B. B. Crowninshield for Mr. Tucker Daland, Brookline, Mass.



Construction Plan of Forty-Five-Foot Schooner Heron

HERON

THIS little schooner was designed by Mr. B. B. Crowninshield, of Boston, Mass., for Mr. Tucker Daland, of Brookline, Mass., who desired a boat that could be easily handled by two pairs of hands, and at the same time a craft that would prove comfortable and moderately fast for family use.

The designer writes of her as follows: "She was built early last Spring by the Richard T. Green Company, of Chelsea, Mass., and was equipped with a 12-h.p., two-cylinder, horizontal-opposed Brennan engine. Under power alone she goes a little better than 5 miles, and Mr. Daland assures me she is very fast in moderate to heavy weather and will easily sail within four points of the wind. He took her out purposely two or three times under strenuous conditions and states that she is

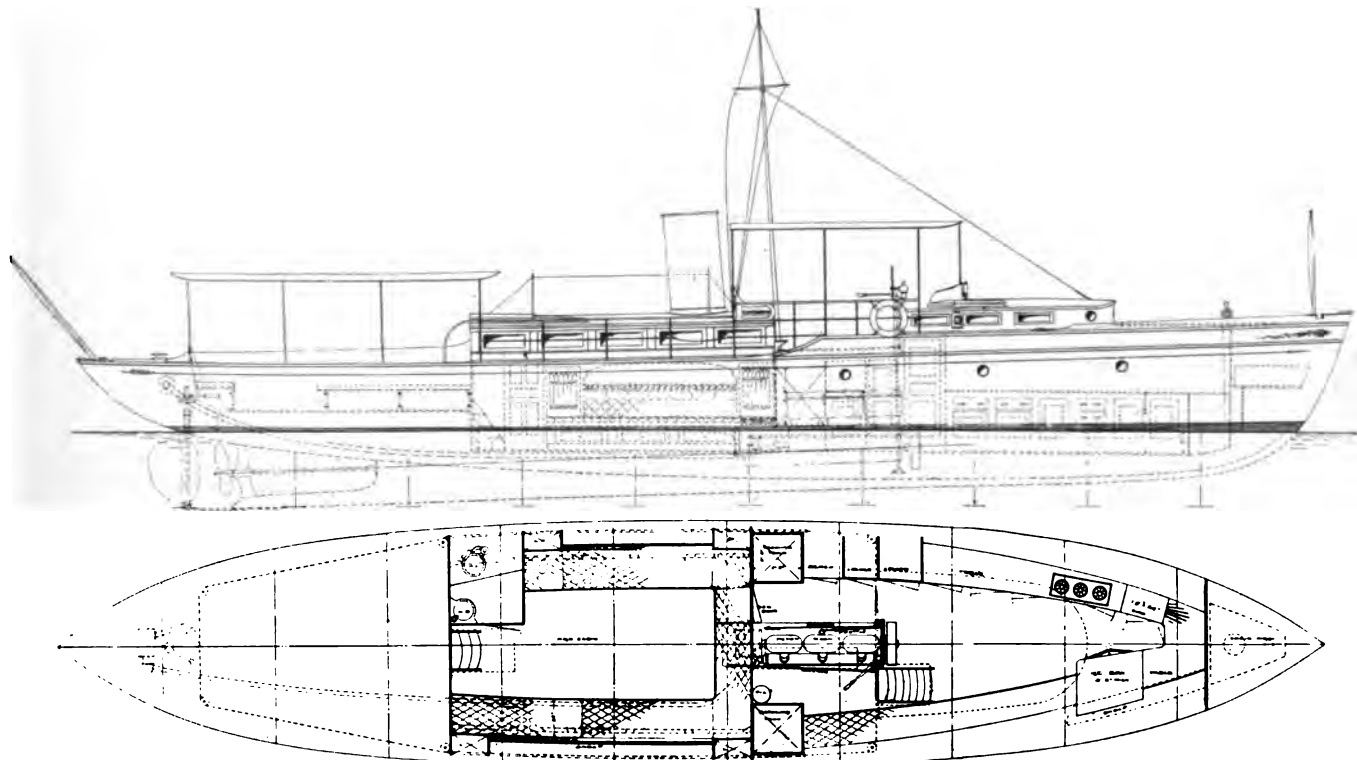
very stiff. He further assures me he went a nautical mile in six minutes with beam wind under sail alone.

"If so, the boat sails faster than I should suppose, as I think that 9 nautical miles per hour would be pretty nearly her limit; however, she is really fast. She has 6,000 lb of iron on her keel, and 2,500 lb of lead inside; and as you will see by consulting her accommodation plan, there is full 6 feet headroom in both after cabin and the forward cabin.

"Her arrangement is somewhat unusual, the galley on the starboard side and the toilet room on the port side both being located between the two cabins."

General dimensions are as follows:

| | |
|-------------------|------------------|
| Length o. a. | 45 feet 6 inches |
| Length w. l. | 33 " 0 " |
| Breadth | 9 " 2 " |
| Draught | 6 " 3 " |



Ardea, 60 Ft. O. A., 50-H.P. Standard Engine. (Described in September, 1191, Issue)



Valkyrie, ex-Octalee V. 30-H.P. Murray & Tregurtha Engine. Owned by Mr. Carl E. Schmidt, Detroit, Mich.

VALKYRIE, EX-OCTALEE V

THE accompanying drawings and illustration show the 52-foot cruiser Valkyrie, ex-Octalee V, designed by Wm. J. Deed, Jr., of Boston, Mass., for Mr. E. H. Tarbell, of the same city. After being in use all Summer the craft was sold to Mr. Carl E. Schmidt, of Detroit, Mich., and her name changed.

The boat is similar to the previous Octalees, each of which has had such changes incorporated in their design as has been suggested by the wide experience of Mr. Tarbell, and he states that the last craft was, in his opinion, the best of them all.

The boat is substantially built and is finished in butternut and mahogany. The owner's room is 8 feet 6

inches long, and contains a 36-inch berth; a door opens into the toilet room and a sliding door is between the saloon and stateroom. In the saloon, which is 9 feet 6 inches long, are transom berths, and a handsome buffet.

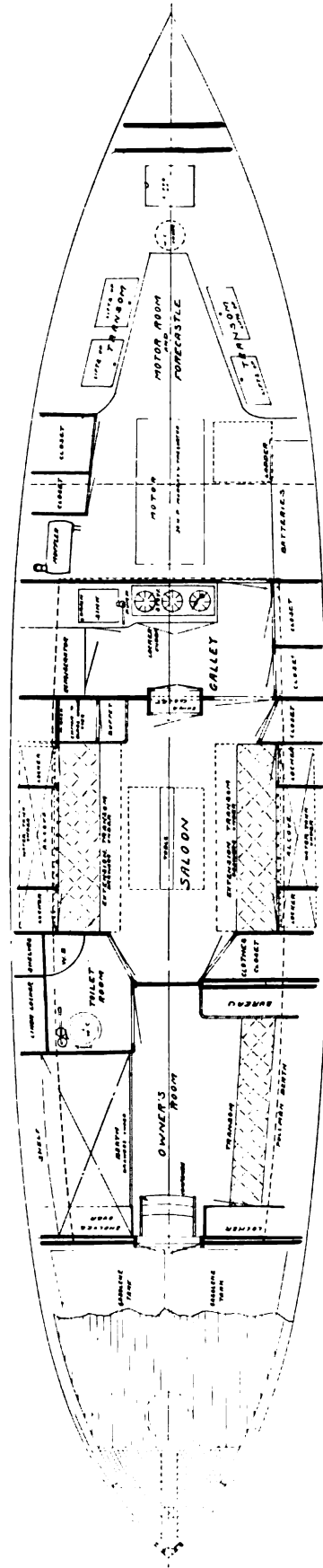
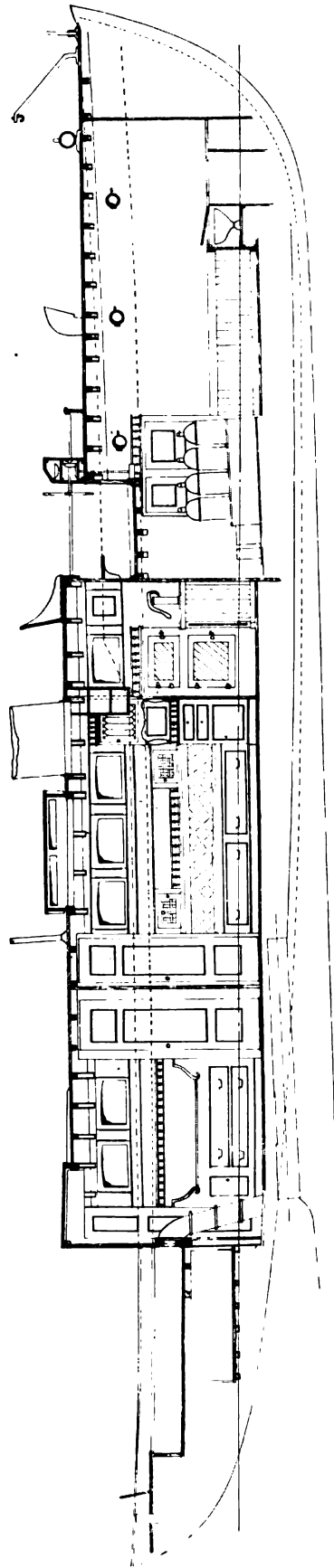
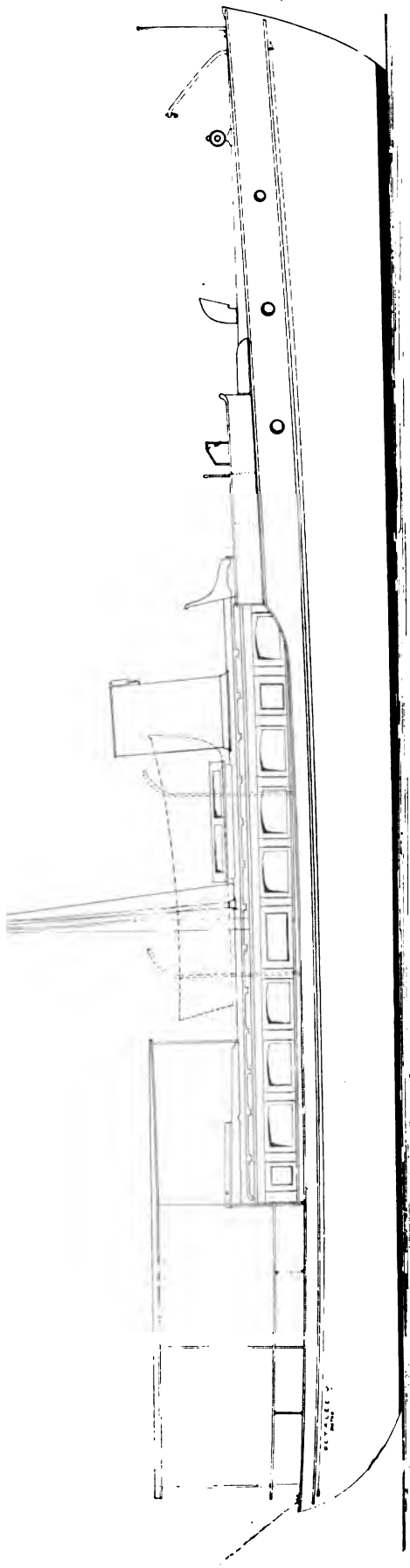
Under the shallow cockpit aft are 300 gallons of gasoline in heavy copper tanks, and separated from the rest of the boat by a steel bulkhead. The engine, a 30-h.p. Murray & Tregurtha, drives the boat at a speed of 10 nautical miles per hour.

General dimensions are as follows:

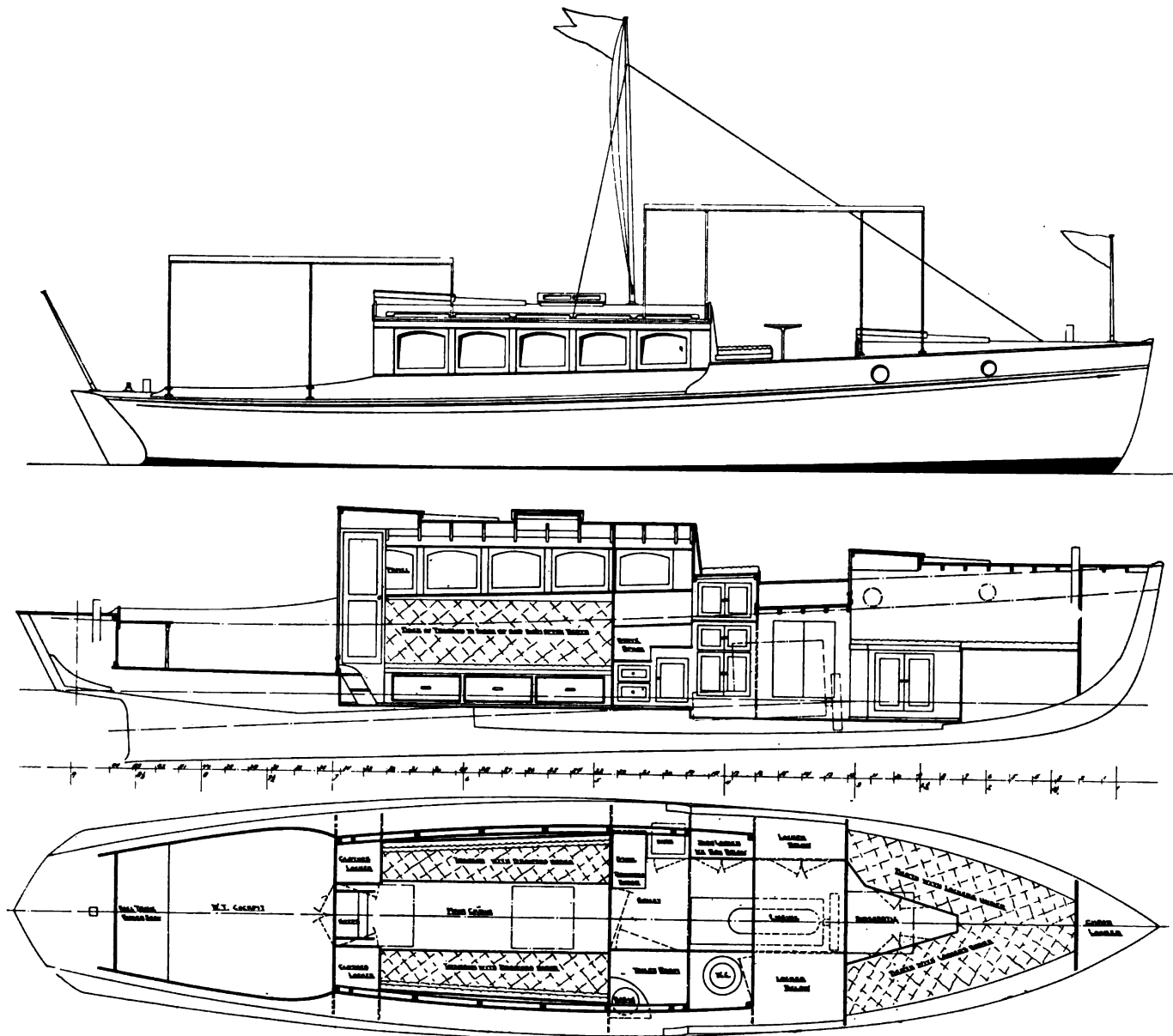
| | |
|-------------------|------------------|
| Length o. a. | 52 feet 6 inches |
| Length w. l. | 46 " 0 " |
| Breadth | 10 " 9 " |
| Draught | 3 " 6 " |



Triune, ex-Octalee IV. 50 Ft. O. A., 30-40 H.P. Murray & Tregurtha Engine. Owned by Mr. M. W. Houck, New Rochelle, N. Y. (Plans in February, 1911, Issue)



Fifty-Two-Footer Valkyrie, ex-Octalee V. Designed by Mr. William J. Deed, Jr., Boston, Mass.



Thirty-One-Foot Cruiser. Designed by Mr. Carlton Wilby, Detroit, Mich.

THIRTY-ONE-FOOT CRUISER

THIS boat was built for a yachtsman of Meriden, Conn., from designs by Carlton Wilby, of Detroit, Mich., and will appeal very strongly to the man who wants a small seaworthy cruiser with good headroom in the cabin, and at the same time desires to avoid ungainly appearance. The combination of raised deck forward and trunk cabin amidships retains the seaworthy qualities of the raised deck cruiser, and still has the advantages of light and ventilation found in the glass cabin type. A narrow deck is left each side of cabinhouse, to enable a man to get forward easily in handling lines, etc.

The cabin arrangement provides sleeping accommodations for six persons, with toilet, galley, and ample locker space. Berths for two persons are shown in the forward cabin, while in the main cabin four persons may be accommodated by utilizing the transom backs, which are upholstered and arranged to swing up, forming upper berths.

Clear headroom of 5 feet is obtained in forward cabin, and 5 feet 9 inches in main cabin. The height of cabinhouse above raised deck makes it possible to arrange for steering inside in bad weather,—a feature which will be appreciated by many.

A watertight self-bailing cockpit is located aft, protected with canopy top. This cockpit is left free for the use of chairs, with the exception of a seat at after end, under which the fuel tank is located.

A 10-h.p. engine was installed forward as shown, which gave the boat a speed of about 8½ miles.

Principal dimensions are:

| | |
|-------------------------|------------------|
| Length o. a. | 31 feet 0 inches |
| Length w. l. | 28 " 6 " |
| Breadth | 7 " 9 " |
| Draught | 2 " 4 " |
| Freeboard, forward | 3 " 9 " |
| Freeboard, aft | 2 " 4 " |

Eng. Lib.

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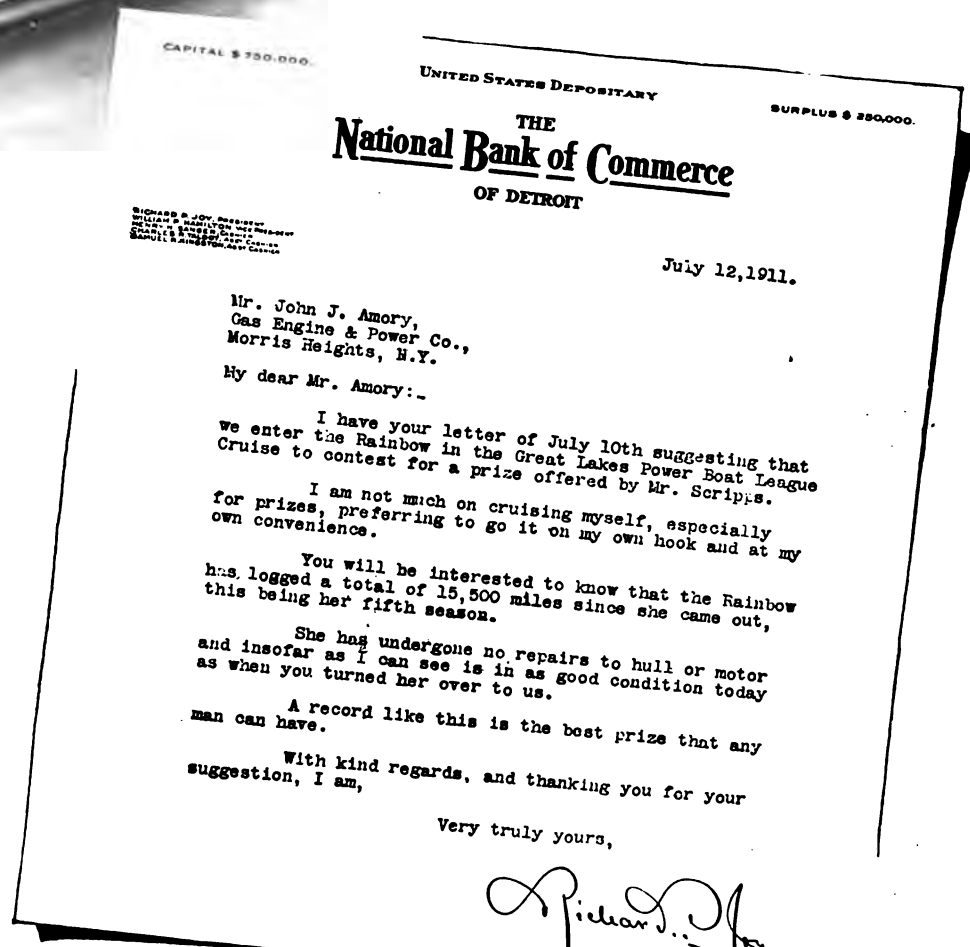


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From a Painting by Warren Sheppard

A Narrow Passage

Salutement to The Redden

The Rudder

Edited by THOMAS FLEMING DAY

Vol. XXVII

FEBRUARY, 1912

No. 2

THE LOG OF TOTEM, 1911

T. A. & C. S. Hine



NO troubles to chronicle this time. "Clint" Dey came over and shook hands with the Buffalo and it said, "Certainly," and started off like it was chasing a girl down Broadway. The "Old Man," meaning Commodore Kroll, slid our hearts' delight into the water as easy as a sinner slides down the gilded incline. The Skipper said "Chu, chu," or words to that ef-

fect, and Miss Totem began her journey into the Summer of 1911.

The trip down the Passaic does not matter much. If any one really desires to know what kind of a trip it is he has but to stand on the banks of the river for a brief moment and inhale its wondrous combination of odors, whereupon he will understand why such a trip is not fit to mention in polite society.

It may be recalled that a year ago it was discovered that the leaving of water in the engine when the boat was laid up for the Winter gave Mr. Jack Frost an opportunity to take advantage of the situation, and that he did his darndest. The engine made a journey to Buffalo as one of the consequences and there were various and sundry outlays that ran up into three figures, which made the Skipper more sad than words can tell. But he had a balm for his bleeding pocket which had been entirely overlooked, and this was an insurance policy which, it seems, covers the boat as a mother shields her young.

It never occurred to the Skipper that such damage was included in the many blessings which the U. S. Lloyds showers on those who seek its protection, but this Spring when a new policy came in he reread its provisions and what he saw therein rejoiced his heart greatly. Apparently the only thing the company does not insure against is the weather. If that gets ugly

and spoils a picnic there is no compensation, but otherwise all one has to do is to pour his troubles into the ear of this mariner's best friend, and it immediately wipes away all tears. It has the fairy godmother business laid away on the top shelf.

As was the case last year, the Staten Island Y. C. extended its courteous hand in welcome when Totem poked her lovely nose around the city dock and headed in its direction. Pretty much any yacht club would say "yes" under such circumstances, but there are so many different ways of handing out that small word that when it comes hearty and strong it is appreciated.

Totem came down on a Thursday and, as before intimated, dropped anchor in the friendly waters of the S. I. Y. C., with intent to remain just long enough to scrape the Passaic River from her body and then head for Echo Bay, which she did on the following Sunday.

June 18th.—This was the day for the journey up the East River, and it turned out to be a very fair sort of a day, though the weather man gave us something of a fright in the morning. This weather man is an inconstant friend—his predictions come true just often enough to make one feel uncertain as to what the day may bring forth, and while we all know that he is an awful, awful liar, we can never be quite sure just what his game is this time, and so we have come to slight his opinion when it does not agree with our view of the situation.

Consequently there assembled on Totem's deck this morning the Professor, who knows many things beside Greek and Latin lore; the Gardiner, whose scientific cultivation of our Buffalo last season has saved our friend the insurance company much geld; the Skipper and the Passenger. Henry did not assemble because he had already been assembled. Henry, by the way, was not brought up within reach of the English language, and it sometimes seems as though he did not always appreciate all its fine points, but he knows what "damn" means and learns a little something every now and then. Henry has a heavy foot which he has been used to dropping anywhere in a ship's yawl, and he has not as yet acquired that wisdom which leads one to instinc-



Totem in Her New Dress

tively place his foot in the center of a cranky dinghy—however, a bath now and then is as good for Henry as for any one else, and wisdom, they say, comes with age and experience. Henry is in line for both.

The new three-masted schooner yacht Karina, Mr. Robert Todd, able mariner, owner, has been lying off the Stapleton anchorage for several days. She furnished a topic for a few moments of conversation while Totem maneuvered for a picture. Possibly it is not worth mentioning, but it is a fact that Totem can sail all around Karina (when she is at anchor) without half trying. Then there was Mannie Swan of New York, able seagoer. She works for a living, but has a trim figure and dresses up to it, and the Skipper also wanted her picture.

The Passenger wanted a picture of the bell buoy off Robbins Reef with the lighthouse in the background, and after that was accomplished we headed away for Echo Bay. It may be of interest to some to know that Robbin is a slight shift from the Dutch word Robyn, which means seal, and that a literal translation of Robbins reef is "seal rocks." As we neared Governors Island the steam yacht Sagamore came along. She made such a profound impression on the camera that it has retained it even unto this day.

The East River is well known to us all; any one can secure a very good impression of what this part of the trip was like by glancing from right to left while walking across the Brooklyn Bridge. We ran into the New York Y. C. way station at Twenty-third Street and took on the Editor, who observes Sunday by starting work at 6 a. m. We half expected that the Commodore would present us with his lovely form at the same time, but he failed to connect.

The tide being fair we got the hell of a gait on us just beyond Blackwells Island where, between our own power and that furnished by Nature, the Skipper estimated we were making about 18 knots an hour, or minute, or something.

The Editor, coming in contact as he does with many phases of human life that do not reach into the humdrum of those who must really work for a living, has strange tales to tell. Here, for instance, is one which is both an incident and a receipt. The Doctor calls, and says: "Well, Mrs. Jones, did you test your husband's temperature, as I told you?" "Yes, Doctor," responds

the lady; "I put the barometer on his chest and it went around to 'very dry,' so I gave him a pint of beer, and he's been to work this morning."

Now while this soul-stirring incident was being recounted we have rounded Fort Schuyler, have passed City Island and, much to the surprise of the Passenger, who had long ago been put to sleep by the gentle flow of conversation, he was rudely awakened by "the rattle of block and sheet, 'ready about, stand by'" to find that Henry was reaching for the mooring buoy and the Skipper was using words the meaning of which I fail to find in the dictionary, for the cussedness of inanimate things was receiving all his attention. It seems that the clutch on the reversing gear had lost its grip or a set screw and, Henry having neatly missed the mooring, it looked as though Totem was seeking an introduction to the club float, and all this just at the time when the Skipper had thought to make a grand impression on the beholders; but the Skipper had an anchor ready for just such emergencies, and it was let go in time to avoid disaster.

July 1st.—With two of our former friends we set out this day to plough the waters of Long Island Sound from end to end. The Commodore was first of these to come aboard, and he was followed at 4:08 by the Summit Contractor. This does not mean that our friend is at the top of the heap in the contracting line, but rather that he comes from Summit, N. J. (No Joke.) However, he has been remarkably successful in contracting certain habits which are heartily approved of by Mr. John G. Saxe, who once wrote:

"God bless the man who first invented sleep."
So Sancho Panza said, and so say I."

And—

"Damned be he who first cries, 'Hold, enough!'"

Or words to that effect. Possibly I am mixed on my poets, but so long as we get the idea it is small matter what the mixture be.

At 4:15 the dinghy was swung up, the mooring line was cast off and we were slipping out of Echo Bay. While we were yet lying at anchor a barkentine was seen plodding down East under all sail, and the Skipper,



Mr. Negus Adjusts the Compass



Sea Bird Came Back

seized with a sudden gift of tongues remarked: "There goes a picture we will get a bit later," and after results showed that he was no false prophet. The vessel proved to be Stranger of Louisberg. The camera captured her three times.

While from the point of view of certain materialists it is a very fine thing to have the engine always working smooth and with singleness of purpose, the log-keeper, who must fit about so many words together or lose his job, does not approve of an easy-working, non-damnifying engine for the simple reason that he is out many a talking point. He is now in constant fear lest the Skipper, through disuse, lose that perfect command of the language which is one of his most admired points. And then the log-keeper has no speed bug in his aquarium; in fact, not even so much as a microbe, and does not care whether Totem travels fast or slow. Consequently it can easily be seen that he is not altogether comfortable over the present easy-running situation. He did give one sigh of relief when the engine gave one of its old-fashioned gasps and died. The Skipper went down below with something that sounded like a blank space in polite print, to find that Henry, desiring gasoline for his stove, was drawing same from the carbureter. With a few well-chosen words it was explained that that was not what the carbureter was for and our Buffalo, having a little *aqua vitæ* poured down its throat, was saved for future usefulness.

About now we passed Mary E. Suydam of Patchogue, L. I., loaded with oyster shells and with her "kicker" going which, because the breeze was of faint heart, was doing more pushing than her sails. Mary is not a very trim old girl, but she seems to be industrious. She set herself against the low descending sun, and we took her picture, be gosh!

We had it in mind to shelter in Lloyds Harbor for the night, and naturally turned toward the South where Huntington Harbor lies. Again the low descending sun furnished a background for the camera, the foreground being occupied by Alice II of Echo Bay and the middle distance by the Lloyds Harbor Lighthouse. As we rounded the sand-spit we were surprised to note the number of boats that were of like mind with Totem. There were fifteen to twenty, and a goodly proportion of them flying the New Rochelle Y. C. pennant. To drop anchor in Lloyds Harbor for the night makes one

feel as safe as though he were locked up in a burglar-proof safe.

July 2d.—The Commodore's is one of those active, restless natures that must be ever on the go. Thus, after much spurring on his part, we had the anchor up by 6:15 and were looking for open water and that magic distance where the sea-line meets the sky, that the poet tells us of. This was one of those gray mornings, just sea and sky with a misty suggestion of land to the South of us, and we were furnished a fine excuse to steer by compass, E. $\frac{1}{2}$ N. The sun tipped the edges of the wavelets occasionally, but only when it came on a thin spot in the gray above us.

The bacon and eggs were laid out about 7:30 and duly interred, while Henry took the wheel with instructions to steer due East.

The softness of this perfect gray day tempts one to linger over it. Occasionally a few drops of rain came from the clouds to gently accentuate our comfort, and even the gray distance held enticement to explore its mystery, just as a winding woodland road leads the traveler on, and on, and on. An ideal day on the water; no wicked sun to blister us with its scorching heat or tire the eye with blinding dazzle.

At 6 bells a butterfly, or what looked like one to our earthly eyes, crossed our wake and instantly the engine stopped. Probably it was not a butterfly at all, but an evil spirit which had taken such harmless shape. The Skipper dropped below and soothed our Buffalo's perturbed feelings so successfully that Totem hardly slackened in her mad career.

All the morning we were alone with the sea and sky and grayness, even the land lost itself for a time in the thickening atmosphere and, until the bluffs of Hortons Point loomed up, no solitary speck on the horizon arose for us to speculate upon. From now on we skirted the shore, passing Rocky Point at 2 bells. Any one having seen Rocky Point will need no lengthy explanation as to why it is so named. The rocks are of all sizes; some as big as a house and lot, some not so large.

Now we begin to pass fishermen in their little boats. One of these became so much interested in us that he forgot all about his occupation until his prey snatched the rod from his hand. In going it apparently took a bit of finger nail or some other material portion of his anatomy with it and, as we saw him vigorously shaking



Calm on Oyster Bay

his hand and moving his lips up and down, the while he was disappearing in a blue cloud that rapidly developed about him, we must conclude that he was feeling sore over something.

In due course we rounded the Orient Point Light and started West for Greenport, which was reached at 3:15. From here the Contractor was compelled to return to his contracting.

The Editor, who reverses the rule of life laid down in the Fourth Commandment, had arranged to retire from business early to-day and to meet us here, and as he was due at 7:15, and the train is seldom more than an hour or two behind time, we concluded to dine late that we might imbibe wisdom with our victuals. When he arrived, however, he had no talk but of the weather—in all his experience he could only recall one place that was as hot as was New York on this fierce Sunday.

The Commodore is one of those keen lovers of Nature that are met with by most of us but once in a lifetime. Nature unadorned is to his simple heart what the fishing rod was to old Izaak Walton; hence he brings with him a pair of slippers that, when his soul stirs within him and the call of Nature fills his whole being during those hours when those of grosser mould are courting the drowsy god, he may steal on deck and there commune with his innermost thoughts. Then his pent up feelings relieved, he can return to his bunk refreshed and strengthened for the long hours when the raveled sleeve of care is knit.

July 3d.—We lay last night in the snugest little cubby hole that ever was; its familiars know it as Deering Cove. The Shelter Island Y. C. has pitched its open air bungalow on these shores and dispenses courtesy to those of other clubs as they wander in and out of these waters. We even borrowed its hose to fill our tanks with the delicious water that is piped down to the shore from some inland spring. The clubhouse fits the situation to a nicety, one large room entirely surrounded by shaded verandas, its interior depths having a coolness that tempers even the hottest day to the sweating citizen. It is a good prototype of those early inhabitants who sheltered the persecuted Quakers driven from Massachusetts by our gentle Puritan ancestors, and thus gave the island its present name.

The Commodore knows these waters as well as the fish that swim them (he also knows some of the shady spots on shore), and under his guiding hand Totem this morning began to circumnavigate Shelter Island by way of Greenport Harbor, Southold Bay, Shelter Island Sound, from which we can see the broad waters of Peconic Bay; past the headland known as North Haven, and come on the spires of Sag Harbor; on past Mashonnack Point, and after doubling the Cedar Point Light we are in the open waters of Gardiners Bay. There is good water most of the way, and the tortuous places are well buoyed.

The Commodore is a great antiquarian, and naturally he knows much of the lore of this region. As we passed Peconic Bay he told an Indian legend which attaches to its shores in words that were so closely allied to those used by Mr. Wilson, who relates the tale in his "Rambles of Colonial Byways," that we could not but believe that the Commodore had committed Mr. Wilson to memory for the occasion—of course this is just between us four—we would never mention it to the Commodore:

"Life among the Shinnecock Indians has not been

without its strange, mysterious tragedies. At the close of a Summer day seventy-odd years ago a small sloop coming from the Northward anchored near the shore of Peconic Bay. The only persons on the sloop who could be seen by the Indians fishing close at hand were a white man and a negro. After darkness had settled over the bay a light flickered from the cabin windows of the sloop, and a voice, that of a woman, was raised in song. In the early morning hours a noise was heard in the direction of the boat and a woman's screams floated out over the water. Then the listeners on shore heard the sound of the hoisting of an anchor, and a little later in the early morning light the sloop was seen speeding out to sea. Just before it disappeared a man standing in the stern threw something white overboard.

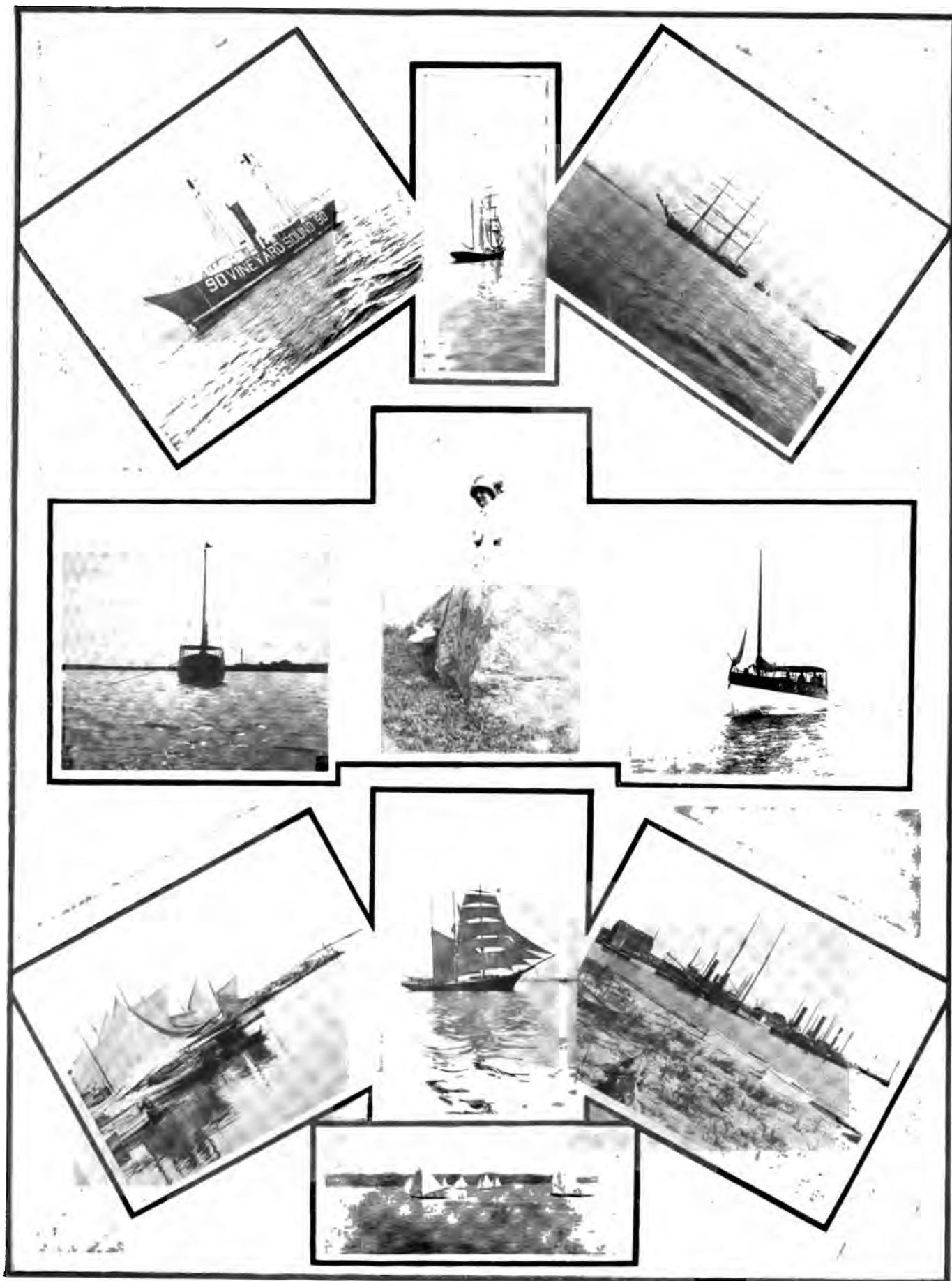
"Among the watchers on shore was one Jim Turnbull, an Indian known as the Water Serpent. After a time Turnbull swam out to the white object floating on the water. As he drew near he saw it was the body of a woman lying face downward. When Turnbull turned the body over he recognized the face at a glance. The woman's throat had been cut and a dagger thrust into her heart. Then he conveyed the body to the beach and, aided by his companions, buried it near the head of Peconic Bay. The day following the woman's burial the Water Serpent disappeared. He was absent for several weeks, and when he came back to his home in Shinnecock Hills, gave no hint of his wanderings. Years later, however, when he was about to die, his lips opened and told a fearful story.

"During a Winter's storm a few months before the murder in Peconic Bay the Water Serpent and several other members of his tribe had been wrecked on the Connecticut shore. The Water Serpent, alone escaping death in the waters, was found lying unconscious on the beach by a farmer named Turner, who carried him to his home near by, where the farmer's daughter, Edith, a beautiful girl, nursed him back to health. An Indian never forgets a kindness, and the Water Serpent was no exception to the rule. He did not see his young nurse again until he found her body floating in the waters of Peconic Bay. Following this discovery, he quickly made his way to the home of the girl, and found that she had eloped with an Englishman, a former officer in the British Army. The Water Serpent told his story, and two of the girl's brothers went with him to her grave. They opened it at night, identified the body, and carried it away for burial beside that of the girl's mother.

"The Water Serpent had seen the Englishman and remembered his face. With the farmer's son he took up the search for the murderer, and finally traced him to a farmhouse near the village of Stamford. One day the Englishman was missed from his usual haunts, and months afterwards his body was found, in a thick piece of woodland, with a dagger plunged through the heart. It was the same dagger that the Water Serpent had found in the heart of Edith."

Henry emulates the gentleman who "polished up the handle of the big front door" to a remarkable degree; he is that industrious that there is no sleep where Henry is after 6 a. m. Not only the deck, but every bit of brightwork must have its rub down, and his willingness to work goes a long way toward making up for his lack of small-boat knowledge. The way he polishes must give the brass an impression there is a steam scrubbing machine on board.

The last word concerning our course left us in the



A Few of the Views the Camera Saw

open waters of Gardiners Bay, and we headed for the island of that name. As the day is somewhat misty and we cannot see much but sky and water, suppose, while we are crossing the bay, we emulate Mr. Wegg, only it is history we shall drop into, not poetry.

In 1639 Lion Gardiner purchased the island which still bears his name (the same year, by the way, that the ancestor of this veracious chronicler helped to settle the town of Milford, Conn.). This was the first English settlement within the limits of the present State of New York. It was granted "an entirely separate and distinct plantation," the proprietor being empowered to make all necessary laws.

The Indians knew the island as "Manchonake," the whites as the "Isle of Wight." Gardiner purchased it from the Paumanoc Indians for "ten coats of trading cloth." He immediately made friendly advances to Wyandance, who later became chief of the Montauks, and retained the friendship of the Indians to the end. His title to the island was confirmed by the English.

David Gardiner, the second proprietor, received a patent from Governor Dongan which created the island a lordship and manor.

John Gardiner, third lord, was much troubled by pirates. Twice they robbed him of his valuables and once they beat him with swords and tied him to a tree. On the other hand Captain Kidd visited him and left valuables in his keeping. Life was not without its excitements in those good old times.

During the Revolution the British stole cattle and sheep from the island; then came the patriots, who took what remained of the stock, and later the British made a second raid. Since then these piping times of peace

do not appear to have afforded much in the way of adventure.

We dropped anchor off the landing and, after giving the occupant of the manor house decent time to digest the noon meal, presented ourselves at the chief entrance of the old home with a request that we be allowed to ramble about this island domain. The Lord of the Manor himself greeted us with the same courtesy that was extended twenty years ago to some of our number by his progenitor.

The house, built in 1774, is a fine example of the old Colonial dwelling, dignified and spacious. Back of this we passed an old building whose hand-split shingles bespoke the passing of many generations; over its door hangs a great bell that might be used as an alarm, or to call the farmhands to dinner. The house knows no bolts nor bars, and as its doors stood invitingly open the simple, picturesque interior was so suggestively sketchy that we needs must stop a moment to rescue it from oblivion.

Following a cart track up the gently sloping land and through the woods we came again to the open, and there on the right saw the old burial ground, shaded by its own grove of locust trees. Here are some very fine old tombstones, some with bronze coats of arms which date back to the early days. One box tomb contains so much history that we copied the inscription entire; the top of the slab runs as follows:

"In memory of Lion Gardiner and Mary Williamson, his wife, who came from Worden, in Holland, to London, July 10, and arrived in America November 28, 1635. After commanding the garrison at Saybrook four years he removed to the Isle of Wight, which he purchased of the Indians, called by them Manchangonoc. Being the first Englishman settled in the State of New York.

"He died , 1663.

"She , 1665.

"David, their son, born at Saybrook, April 29, 1636. The first white child born in Connecticut, died , 16—. Mary, his wife, whom he married June 4, 1657, at Westminster in England, died 16—."

The South end reads:

"Here lies the body of Elizabeth, the third wife of John Gardiner, the third Proprietor. She died 17—. He (son of David and Mary Gardiner), born April 19, 1661, died June 25, 1738, at New London, where he was buried."

The North end reads:

"This monument was erected June, 1806, by John Lyon Gardiner, the seventh proprietor of Gardiner's Island. Sacred to the memory of his ancestors."

The old windmill that once ground the island corn still stands on an exposed knoll by the water's edge, the broken arms lie at its feet and its day of usefulness appears to have passed into history, but even so it assists the imagination and adorns the landscape.

July 4th came to Deering Cove like any lamb; no sound of gun or cracker disturbed its early calm. It looks as though the sane and safe craze had reached into the country even as far as this. What the small boy thinks of it is not on record, but this old boy knows what he would have thought under similar circumstances, and while he personally believes in the "sane and safe," his heart goes out to the small boy in his distress nevertheless.

This being practically the last day of the trip there seemed to be a general inclination to take it easy and



A Lazy Afternoon



Taking on Water and Advice at Deering Cove

merely attempt Lloyds Harbor or other of the nearby bays rather than cover the entire stretch in one run, but here the Commodore stepped in. You will recall that the Commodore is one of those restless, uneasy mortals that is always up and doing, and he was so insistent that we make an early start and push for Echo Bay that the rest of us finally fell into line.

The run back was one long song of a Summer's day. On the one hand sky and water melting into each other at the distant horizon; on the other the hills and bluffs of Long Island; sunlit waves and tumbling porpoises all melting into a glamor which reached down and stirred up pleasant memories of other times and scenes. No one cared to talk and no reading was done, but each sat with half-shut eyes and saw those things which pleased last year or ten years ago; the steady hum of the engine but added to the soothing influence until the hours rolled one within another and we knew not time. With the Commodore at the wheel Totem made a wake as straight as the lane into Heaven, or a slanting sunbeam in the leafy depths of the forest, and so we drove into the golden West. The Sound was all ours, only an occasional distant sail broke the line of the horizon like the last hair on the Skipper's bald head.

Echo Bay is as lively as the market on Saturday night whenever a warm Sunday or holiday comes this way. Its crowded anchorage is then supplemented by gay parties on Harrison Island, the home of the yacht club, which is filled to overflowing with visitors, while the slopes of Hudson Park are banked with the white dresses of the girls as though a heavy wind had shaken them in clouds from an orchard of blooming cherry trees. Many small boats and canoes are dodging about the waters and there is much laughter and song. All of which particularly applies to this gay Fourth of July evening; there was a carnival effect to the bright scene which attracted all beholders.

The fireworks, too, furnished entertainment fit for the gods and, strangely enough, the simpler of these were the most impressive—colored fire set afloat among the boats, a gentle air slowly drifted the brilliant, rolling clouds of smoke against which the small craft were silhouetted, black against living red, forming pictures that were as startling as beautiful, and quite impossible to paint in words. A half moon softly veiled by a thin mist and broken clouds, and the quiet of the night, all lent themselves in a remarkable degree to the perfecting of the weird scene.

As the colored fire died low many beautiful fireworks sprang from the rocky backbone of Hog Island. These, it was said, were furnished by Mr. Iselin for the benefit of the multitude, while the owner of Marie B, which lay about ten feet from us, filled in a vacant moment with the beginnings of a 21-gun national salute; this, however, got on our nerves to such an extent that Totem entered a vigorous protest, whereupon the yachtsman not only discontinued the noise, but showed himself so very much of a gentleman in his manner of doing it that Totem was put to shame for her explosive method of expressing her feelings.

July 9th.—Yesterday afternoon the Contractor came early and he and the Skipper, in Totem Jr., ran out into the Sound and bumped into a New Rochelle Y. C. powerboat race which was expected to continue into to-day, and fulfilled every expectation. The Cornfield Point Lightship, some seventy miles hence, was the turning point. Classic, owned by James Craig, crossed the finish line first at 4:54 a. m.

The racing committee occupied a sloop which lay just beyond our anchorage, and which, as nearly as we could make out in the dusk seemed to be a sideboard yacht. Much phonographic song came from its cockpit and there was a merry sound as of ice in the pitcher.

This morning the Quartermaster came on board with, as he explained, a Sunday morning thirst backed up by a salt mackerel. We did the best we could for him and then put him in a chair to recuperate. Shortly thereafter the Commodore came over the side, the mooring line was dropped overboard and we were bound for no one knew where, fetching up in Manhasset Bay about 7 bells. Under the kind guidance of the Commodore the Manhasset Bay Y. C. set forth a combination of lobster and steamed clams which seemed to be good for what ailed us.

The North shore of Long Island, as we have before remarked, is more hot even than a baked potato, and to-day was no exception to the rule, but the yacht club here has about as neat a way of deceiving the sweltering multitude into the belief that a breeze is blowing as we have seen in many a long day.

On a small extension to its broad veranda where the sun boils down so that no visitor would ever dream of invading its precincts stands a row of what are evidently trick palms, which whip and thrash as though a stormy breeze was in their midst, and these help mightily in tempering the heat to the lambs in the rocking chairs. Presumably the palms have been developed gradually through a long process of selection and elimination to thus simulate the effect of wind, and certainly their actions are remarkably lifelike and effective. It is very wonderful that such an inanimate thing as a palm could be so highly developed and specialized. It would seem as though there might be a large field for this particular variety.

The town of North Hempstead is one after our own

heart; it has a law which prohibits the use of power boats without mufflers, and arranges a fine of \$50 for those who thusly destroy the peace of the neighborhood. Great is North Hempstead and greatly to be praised! Would that its neighbors might follow its good example! The desire to make an unnecessary noise in this world is a sign either of youth or a low order of intelligence.

July 13th.—Seventh month, thirteenth day. Seven is a biblical number and every one knows that thirteen is all for luck. We brought our lady-love out to spend the night on the water—she to have the Skipper's stateroom. Her age is thirteen years and her discretion is as the leaves of the trees; no photographer ever found it necessary to ask her to look pleasant; in other words, she is the joy and delight of the brothers of her father. (That last sounds like a French exercise, does it not?)

The experience seemed to please the maid quite as much as it did her elders. Then the new phonograph was also tried out on this interesting evening. *She* thought the Pink Lady waltz was much the best of all, and so we had the Pink Lady waltz again. We all had a real nice time.

July 16th.—The sun-kissed bosom of the Sound! No other words can express the rippling beauty of the waters. We awoke at an early hour to hear the siren of Execution Rocks moaning over its shut-in condition. At six o'clock, when the camera looked out, the greater part of Echo Bay was shrouded in misty oblivion, but a bright spot up aloft banished all fear for the day.

By nine o'clock Echo Bay was clear, but a broad ribbon of white enveloped Davenport Neck, and Execution Rocks were still bellowing. Judge Farmer, who came among us yesterday afternoon laden with honey from his broad estates, whiled away the time with a learned disquisition on Thoreau and the simple life, to which we all agreed heartily in the same generous spirit as is shown in the poem on "Contentment," written by that great sage and philosopher, Mr. Oliver Wendell Holmes. A single verse that we happen to recall will show the deep humility of the whole:

"Jewels are baubles, 'tis a sin
To care for such unfruitful things;
One good-sized diamond in a pin,
Some not so large in rings;
A ruby and a pearl or so
Will do for me; I laugh at show."

We have friends who are Glen Coveing this Summer and the Skipper suggested that we run across the Sound and rescue these from the sirocco which, gathering heat from the sandy deserts of interior Long Island, blasts its North shore with deadly effect. The rescue effected, we stood for the open waters and plunged into a cooling East wind that was as balm and healing to their superheated attics. Our objective was some place to drop anchor while lunch was discussed and, as Oyster Bay is the most windy place on the coast, we steered thither, dropping anchor in due course under the bluff upon which stands the Seawanhaka Y. C. house.

In Oyster Bay we noted what at first struck us as a peculiar meteorological condition, but which we later recalled must be the common condition in Oyster Bay. In the Sound the wind was Northwest—in O. B. it was Southwest. It came to us finally that the god of wind is at home here, and naturally he will not allow his dwelling to be contaminated by the same breezes that sweep over the common herd.

July 19th.—Ladies' Day on Totem, and the Larchmont Y. C. was kind enough to arrange its ladies' day

for the same date. Miss Wadsworth and Miss Olivecrest were the chief events of the occasion; the Editor also came among us. The Skipper made arrangements for a particularly fetching day and, there being nothing in particular to complain of, it was up to the company to enjoy itself.

About eleven o'clock Totem swung out into the Sound, bound for Indian Harbor. The day was as gentle as the little girl with a curl at her very best, just a nice little breeze to encourage the one hundred and thirty-six yachts which had entered the Larchmont Race. As a result the waters were covered with the white sails of the contestants maneuvering for position, with many visitors on the outskirts adding much to the gay scene.

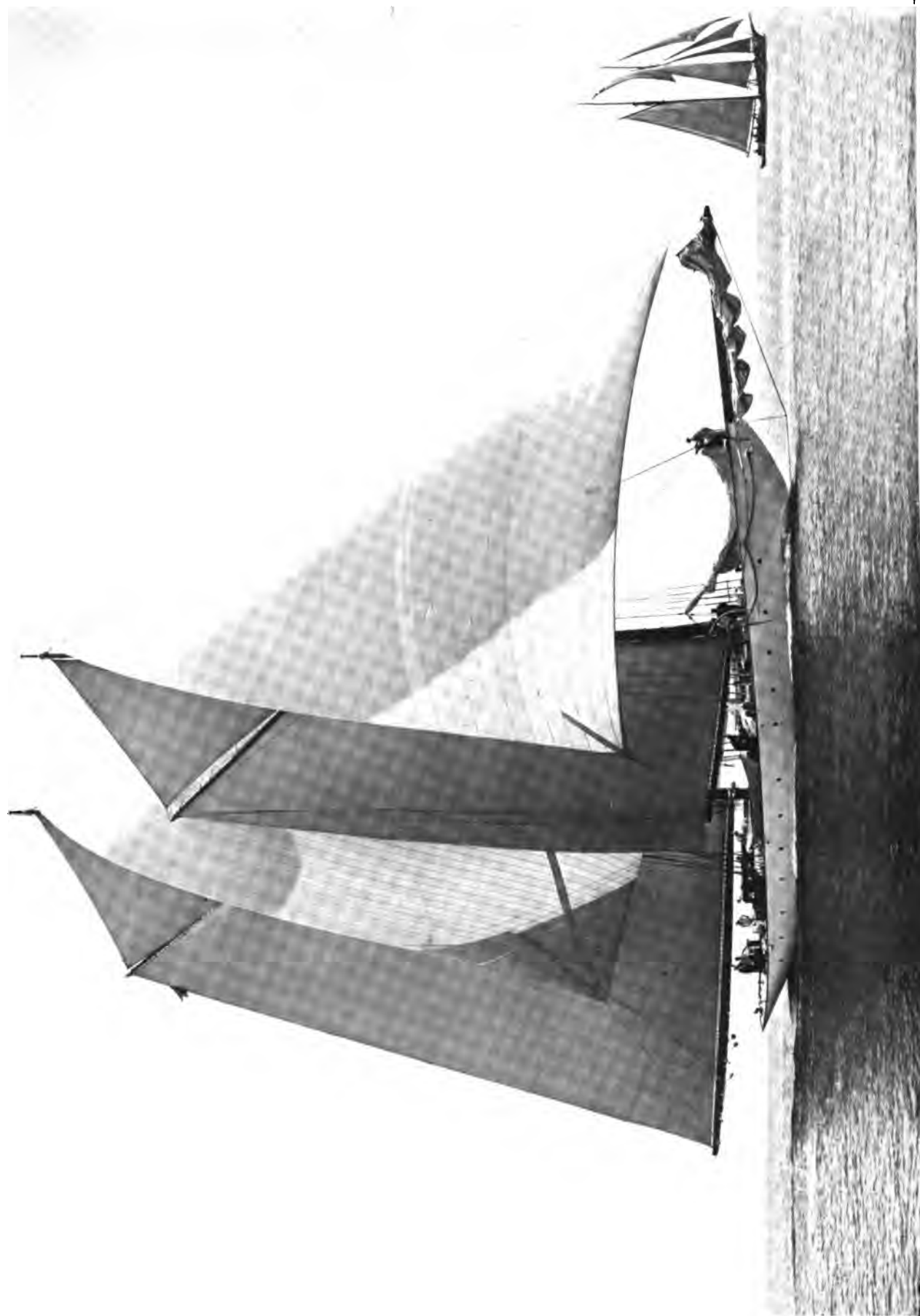
Once we were past this little excitement those assembled on Totem turned to each other for help. The Editor, whose wife has gone to the country, dropped into the spirit of the occasion with alacrity. The ladies, who brought their knitting, settled down for a real nice sociable time, and we learned much of the neighbors. Miss Wadsworth, a notable philanthropist, told of her work among the Chinese and, among other things, the following rather pathetic little incident, which was intended to show the clear insight of the so-called heathen mind in matters religious, once the awakening has come.

In a certain Chinese mission there was a young celestial who always insisted on being the one to take up the collection. At the proper point in the services the superintendent would say: "We will now take up the contribution for Jesus Christ," whereupon the young man would eagerly jump for the plate and begin gathering the offerings, his method being to stand in front of each person with the utmost patience until the individual did his duty, no one being allowed to escape. After this had been going on for some time the Chinaman sought out the superintendent one day and said he would like to ask a question. Given permission, he said: "Who this Gee Cli: all time dead bloke?" Miss Wadsworth also reaches out a kindly hand to the little wildings that live along the edge of the marsh country on Staten Island, over a considerable part of which she reigns a Summer queen.

Thus right merrily was the time passed while we were approaching the arduous duties of lunch. At the psychological moment Henry cast the 80-lb anchor overboard as easily as St. Patrick cast snakes out of Ireland, and after the lunch table had been turned into a state of disorder and while Henry was disposing of the last sad remains, the phonograph told us that Budweiser was its best friend, a sentiment which the company accepted with joy unconfined; it also informed us of many interesting facts in natural history and other sciences, such as for instance, that "Every little movement has a meaning all its own," and after a most interesting and instructive course covering the better part of an hour, Totem again took up her business of making soapsuds and we were soon exploring the mysteries of the vasty deep.

The Sound was littered with racing yachts in bunches of from one to four or five. These helped the camera squander a few plates, after which we picked up the mooring and slicked up for a shore dinner. A brother of Miss Wadsworth who enjoys better than anything the thought that he is making folks believe he works for a living, and who declined an invitation for the day on such a plea, but who, if the truth must be known, is deadly afraid of water, joined us about now for the aftermath, which consisted of a combination of solids and liquids suitable to the occasion.

(To be Continued.)



Enchantress, 136 Ft. O. A., 100 Ft. W. L., 14 Ft. 2 In. Breadth, 15 Ft. Draught. The Last of a Long Line of Famous Yachts Designed by the Late A. Cary Smith. Winner of the King's Cup in 1911. Owned by Mr. William E. Iselin, New Rochelle N. Y.

FLIRTING WITH GASOLENE

THE SHAPING OF SIZZLER

Winfield M. Thompson

PART II



WHEN the "divinity that shapes our ends" led me to my native island for vacation, I had no more idea that I would order a power boat before the season closed than I had of buying a flying machine. My ideal, in fact, was a power catboat, to be built at Osterville—an able, handsome cruiser, in which, as a matter of course, my fancy placed a small, sturdy single-cylinder engine for auxiliary power. I say as a matter of course, for unconsciously I had progressed that far toward power, from having seen the advantages of an engine in the modern boats turned out on the Cape. Beyond that, however, my ideas had not developed, nor would they probably have turned at all in the direction of gasoline but for a succession of events that may be stated here, as bearing on the principles that ordinarily control a man in the selection of a boat.

Marriage usually changes the course of the single-hander. Wifey may "perfectly adore" the water, and be keen for cruising, yet there is a sensible diminution in the hours spent afloat the first year of married life, more on the second, and when the offspring appears, the problem of how to use a cruising boat to advantage comes with it. There are of course exceptions, as of men whose home life does not interfere with their hound's scent for sport, or of men who can afford any number of boats, and sailors to keep them, whether they are used little or much. I am speaking of the chap of ordinary means, like myself. In his case it is a safe bet that marriage changes his boating policy.

The necessity of providing a healthy Summer home for the family led me away from nearby waters, as the first article of this series explained. At the same time, naturally, I was led away from conditions under which I had been doing my boating for many years. In my new environment I found that the cruising catboat would be an inconvenience. I no longer started early on a Sunday morning, or on Saturday, for a week-end sail, and returned at the end of 12, 24 or 36 hours. Such cruises as that called for no touching at floats, no stops, except such as pleasure dictated—and those were usually as far as possible from a town or float, where the anchor could be

cast in a still spot, and the boat could swing free of all other craft.

In my new (or old) Summer home in Maine, I found that a power boat, of moderate size, was the proper thing. The coast being much indented by bays and estuaries, the tides, fickle winds and narrow channels made sailing an uncertain process. In the course of a morning's outing one might make a dozen stops—at the village for a steak, at the machine shop for a bolt or nut, at the steamboat landing to meet a friend, at the fish wharf to buy a bucket of bait, at the ice place for a junk of ice, and so on. Each stop was at a wharf or float, and the latter were usually crowded with power boats. At the end of a week of such service, a catboat would be scratched, gouged and banged up to a degree that would make an offshore man weep. The Maine coast power-boatman does not go in for reverse gears, preferring to manipulate his engine "on the switch." Reversing an engine by the switch is a pleasing but uncertain process, resulting sometimes in the boat going ahead when you dearly wish that she might go astern. The result is a blow at whatever happens to be in the way; and my reader will agree with me that a catboat of 11 feet breadth of beam and liberal freeboard would be very much in the way at a slip containing, say, thirty power launches, each and every one of which is likely to be manipulated in the manner described before leaving the dock.

These considerations led me to consider the fitness of the local type of boat. For a runabout business, use a runabout; for cruising, use a cruiser, was the philosophy of the local boatman—a philosophy founded on the sound principle that local conditions beget needs that are best met locally. It is usually a wise thing to follow the lead of the local boatman. He usually has solved by a long process of elimination the problem of what boat is best for his locality. This may not be wholly true in the case of power hulls in the locality mentioned, since many of them are converted sailing hulls; but the principle of selecting a boat for all-around usefulness rather than for any one distinctive feature prevails there, and is a good one for the newcomer to follow, elsewhere as well as there.

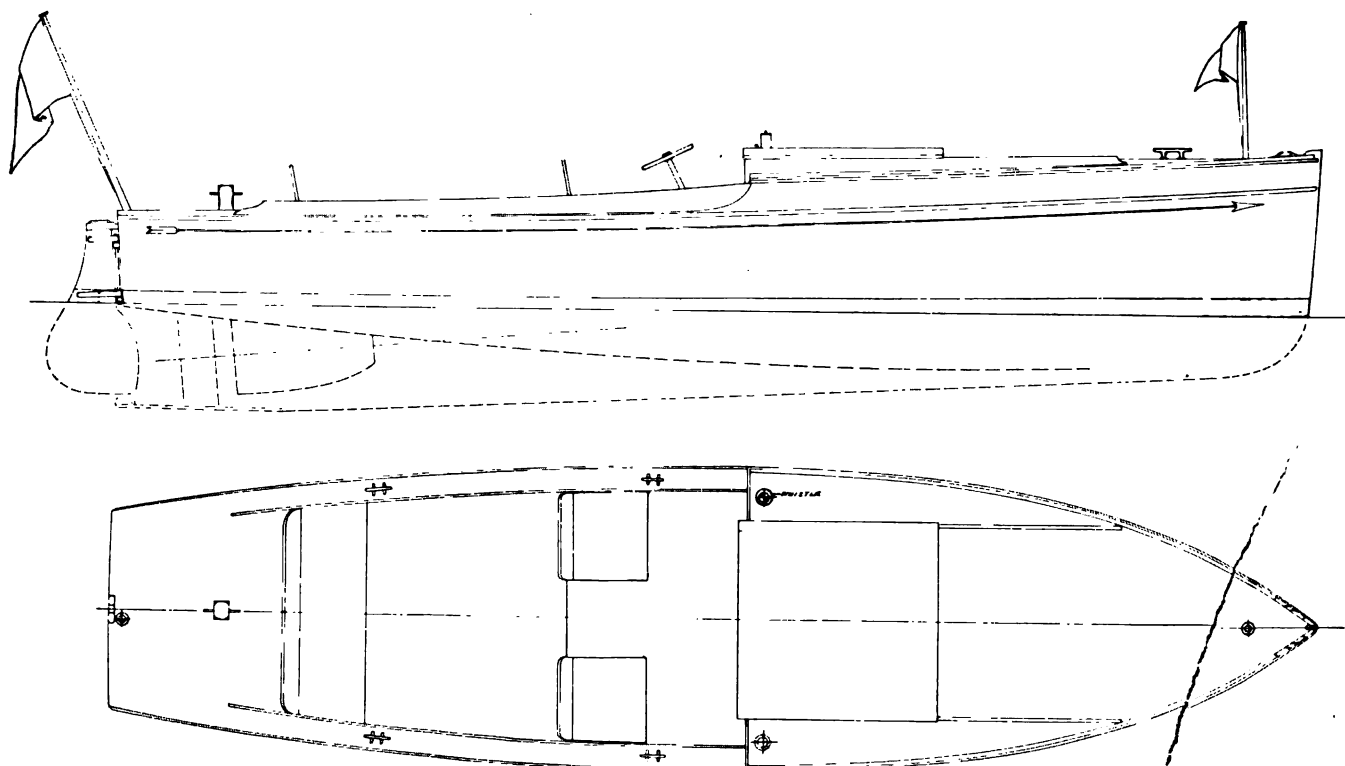
Another consideration that prompts the building of a small boat rather than a cruiser in those waters, is the proximity of every man's home to the water. His boat lies at the float before his cottage. He rarely goes so far he cannot return before night. Why build living quarters on a boat when you have better ones ashore, and can bring your boat's painter into the bedroom by the window, and moor her to the bedpost if you like? In turning this question over in my mind, even before the thought dawned on me that I might build a power boat,

the economics of such a condition presented itself to my mind. You can build and equip a cruising catboat of 25 feet length with auxiliary power, for \$1,200 say, or, if you are particular, it will cost you \$1,400. On the Maine coast you can build and equip a launch of the same length for half the money, and the other half will provide you with a plot of shore land and a cottage of three or four rooms. In this cottage you can install wife and baby, to their great content, while you run around in the launch. Both ends of the family are thus made happy on the same money that otherwise might minister solely to the pleasure of the lord and master.

These things passed through my mind as I tinkered around the hired power boats mentioned in my article in *THE RUDDER* for October, 1911. Up to that time no thought of building a power boat had entered my brain. Now let us note the processes by which the thought appeared and developed. First, it occurred to me that I might pick up one of the small converted cats that, without a rig and with a four or five-horse engine, are to be seen in numbers in those parts. One of them could be bought for \$200. I cast my eye over one after another as I met them, but found some fault in each. During this process I would have taken oath that I had no serious thought of making any study of power boating, or adopting it as a sport. I would merely dally with it to the extent of providing myself a convenient vehicle in which to run about when on vacation with my family, said I. We are told that we have power to make up our minds on a subject without knowing it; that a "sub-conscious self" receives impressions, records them, weighs them, makes a note of the total, and hands us our check before we are aware that the matter is settled. In the case of this boat business I became convinced that this was so, for I learned in due time that while I thought I was planning to buy an old boat, I was really making up my

mind to build a new one. For the benefit of other boating men who may have observed the same phenomenon, I give the facts of the case, which developed after this manner:

One day it rained; one of those copious, foggy downpours you may expect in midsummer on the Maine coast, accompanied by a strong Easterly breeze, and a sea that rolled heavily up on the shelving granite shores of the outer islands. After a turn outside to look at the weather, I returned to the float, and went into Decker's boatshop. There has always been a charm for me in a boatshop, and to loaf in one on a rainy day is perhaps the most pleasant business possible, when one is on vacation and the mind is free. This particular boatshop had been a place of delight to me in tender years. My earliest recollection of seeing a boat in process of construction dates from watching Decker and his brother—now no longer a boat-builder in Maine, but a business man in a Western city—building a little sloop they called *First Trial*. Decker has been building boats ever since—a matter of 30-odd years—and building them so well that some of the immediate successors of the *First Trial* are still in service. I recall "hiring out" for a sandpapering job on one of them. It seemed to my youthful eyes that the bottom of that boat grew as I worked. It was, perhaps, the most back-breaking task I ever did. But I finished it, and there is moral satisfaction to-day in the fact. If I had welched on the sandpapering job I might have kept on welching, and never got a grip on anything. In moments of egotistical reminiscence I suppose most of us revert with satisfaction to some such incident in our youth. It is doubly pleasant to recall it on the actual scene of the happening, is it not? I found it so on that rainy day in Decker's shop. The sweet smell of pine shavings, the models on the walls, the piles of old moulds, the ancient steam-box, the well-kept tools—



Outboard Profile and Arrangement Plan of Sizzler

which the boat-builder so hated to lend in other times that he had a set of "lending tools" always on hand for the use of his neighbors—and all the impedimenta of an old boatshop, carried me back a quarter century. For this reason, perhaps, I fell unconsciously into an old habit of whittling a clean pine stick.

While watching the long sweet shavings curl from my knife and fall to the floor, the thought occurred to me, "Why not improve your time, and make something definite, instead of indulging in this reversion to type, as the scientists would call it, by aimlessly whittling just for the sake of making shavings?"

Thereupon I dropped the stick and began rummaging in the boat-builder's waste pile for a suitable number of pine boards to fasten together for the making of a block for a model. These were screwed together, and placing the block in the bench vise, I began shaping it with a draw-shave. While doing this I had no definite thought that the model I was beginning was for myself, for a boat I might build. It was just a model, I said, to show Decker my ideas of what a power boat ought to be. I had noticed that most of the local launches were low forward, and threw spray badly in the smallest sea. So my first thought was to shape a bow that would be dry in a seaway. To this end I figured on 3 feet freeboard at the stem, with some flare. The length was to be 20 feet.

As I went on with my work the pleasure in it grew, and before I had half finished shaping the block, I could see the boat that might be built from the lines it would represent, breasting the waves in the next Summer's seas. Unconsciously I fell to figuring, as I worked, on the cost of such a boat complete.

By night I had finished the model, and thought it good. Meanwhile some of my boyhood friends had dropped in, to observe and offer kindly counsel.

"Mod'lin' a bo't" was always more or less a public function when I was young, and I respected the spirit which prompted a neighborhood interest in my labors,

and willingly yielded the block into the hands of my old friends for inspection.

"Got a bunch on it there, haven't you?" asked one, with an eye better than mine.

"Cut up too much on the counter," said another. "Haven't got any bearings aft."

"Looks like a three-masted schooner's yawl boat," volunteered a third.

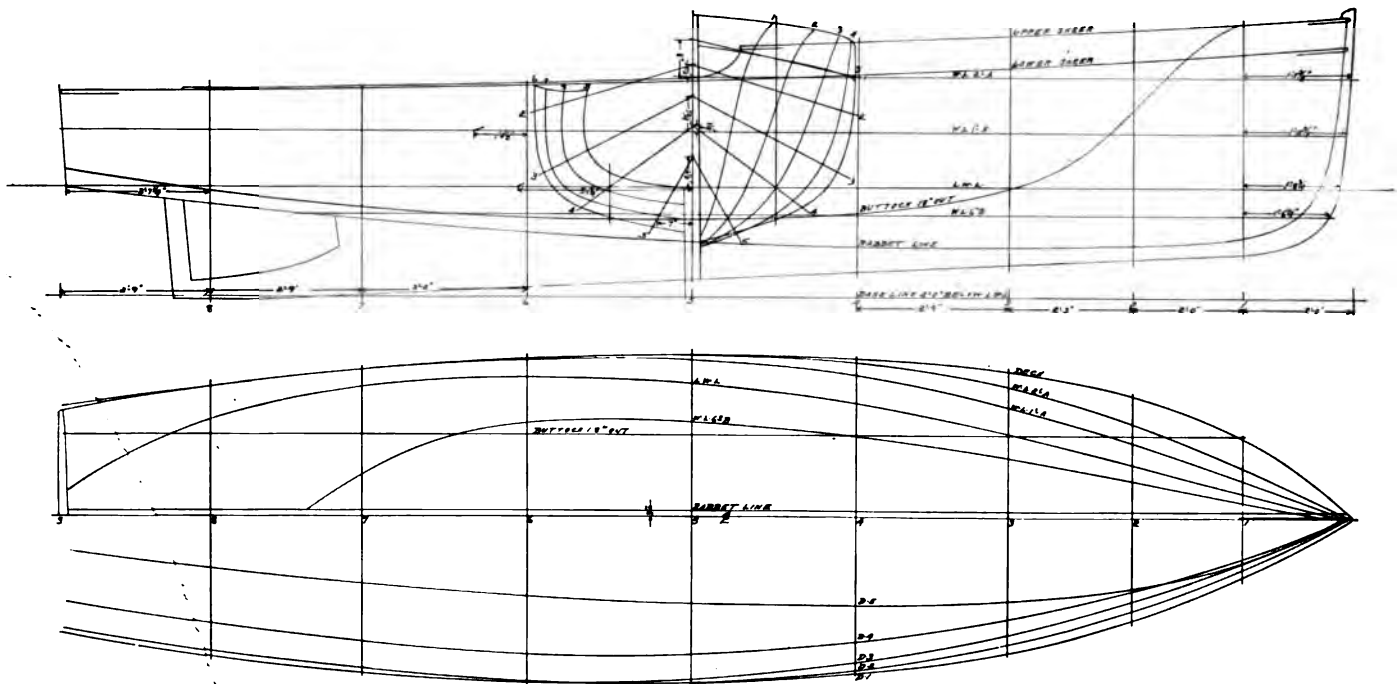
"Plumb stern?" said a fourth. "Why, you aren't going to hang the rudder outdoors, are you? Make a mistake if you do; always in the way around docks; no good when you're backing up in a seaway."

These kindly counsels helped me some, but did not change my views as to the type of boat I wanted to see represented in my model. Yet when the block was finished, and the last bit of sandpapering had been done, I felt that I had not reached the point for which I had aimed. Next day I was sure of it, but could hardly say where the model fell short. By the third day the defects of the model appeared. Scales seemed to have fallen from my eyes. I saw the thing represented a very ordinary, chunky, impossible sort of boat.

There was now nothing to do but make another model. This time I would avoid the errors made in the first.

So Decker rummaged his loft, and brought forth a solid piece of pine, clear and delightfully dry and light. Consulting his memory, he told me the year the stock was laid in the loft, and the boat into which the rest of the piece had gone. The boat had been in service eighteen years.

On this piece of well-seasoned stock I went to work with zeal and care. My choice would have been to make a set of lines, and take them off on pine lifts for the making of a model. But my drawing board and tools were at home, so I contented myself as before, with following the more primitive method of cutting a block. This is an ineffectual labor, at best, and a boat built from a block model, without lines having been taken off and



Lines of Sizzler. Designed by Mr. Ralph Winslow, of Quincy, Mass.

faired up on paper, is pretty sure to be defective in some particular. The sheer is difficult to obtain, and there is no true way of estimating the displacement, or of telling whether you have given the model enough midsection to float the hull at the designed water-line.

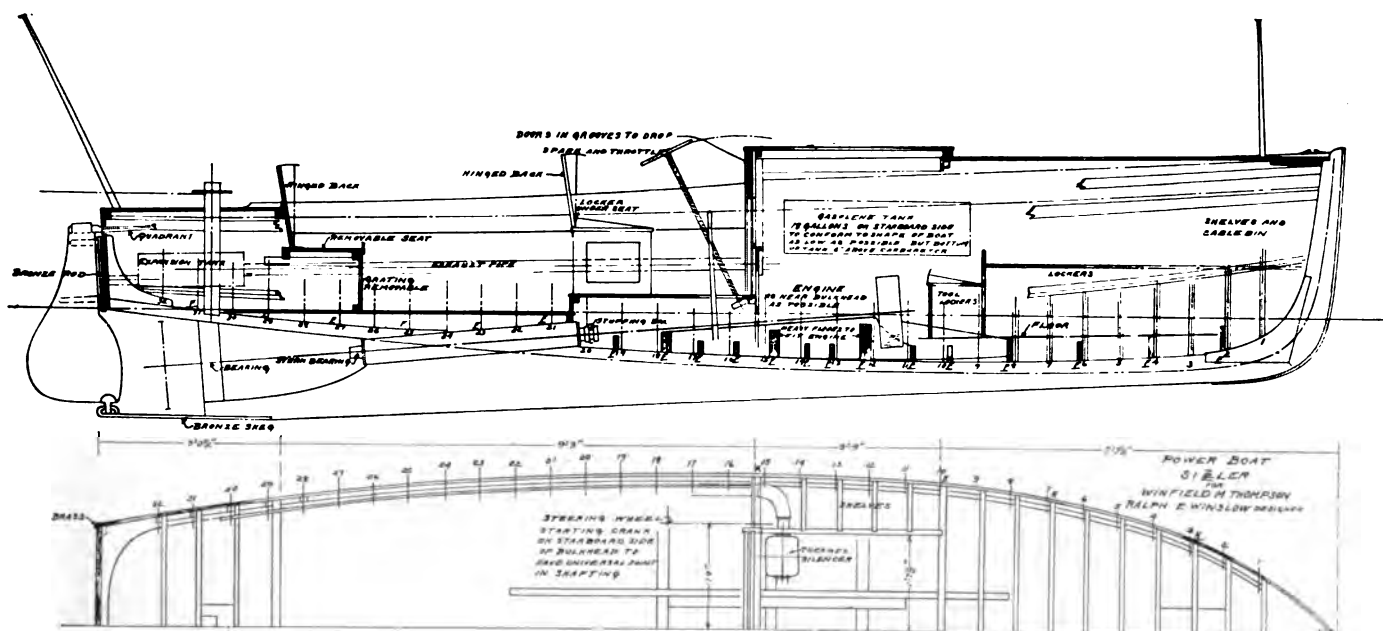
However, it being my intention merely to put into approximate form my idea of a boat, I was resolved, when this model was finished, to take it home with me and have its lines taken off by a naval architect. My aim was to come as near as possible to my ideal in the block, and let the man of science do the rest.

There were certain well-defined features in my block that seemed to me desirable. Possibly after a few years' experience with power boats I may have different ideas. First of all I wanted a buoyant and dry sea-boat. I had seen in Charnock and other early writers on marine architecture lines of navy pinnaces that seemed to have the right shape to withstand heavy seas. The stem was nearly plumb, as I recollected it, with a full deck line and a strong flare to the topsides for a considerable distance aft. So I made my bow to represent, as nearly as possible, that of one of the eighteenth century pinnaces. It was my purpose to give the boat a half deck, with the engine slightly forward of amidships. This deck was to be raised a few inches, both to give freeboard forward, and headroom. In carrying out the flare I found that the combination presented an undesirable feature if the flare were continued too far aft, namely, a projecting corner where the half deck stopped. This corner would prove both unsightly and in the way, so I smoothed it down until the flare had disappeared at that point, and the side was practically plumb. Shaping the bow gave me a lot of trouble, and before I got through with it, I had to glue on a strip at the deck, to bring up my freeboard to where I had intended to have it. I also glued a strip on the bottom, to get depth on the forefoot; but

what with whittling it away, I fell short at last on this dimension.

The stern I thought the easiest part of the model to shape. I wanted it of liberal width, with a straight, clean run. As the work progressed toward completion I saw that shaping a stern is by no means as easy as it looks. A flat stern is bad in a seaway, causing a boat to yaw when running before a sea. If you cut the stern up on the counter, you are apt to cut away your bearings to a point that will cause the boat to settle when under power.

The need of striking the proper balance in this matter, and in fact in every other element in a boat, should lead the amateur, like myself, to confine his model-making within the limit of giving substance to his ideas. In no case should he neglect to call on the naval architect at the proper time, to put his ideas into working shape. The man who thinks he can make a block model of a boat and have it right without the aid of drawings is laying up a store of disappointment. If all would-be builders were to turn to the men of science, and if all naval architects would show a disposition to cooperate with prospective customers in working out ideas that may have originated with the aforesaid P. C.'s, there would be not only a lot more good, workable boats, but a lot more business for the designers. Of course designers are often called upon to get out lines for a man who doesn't know what he wants. Many of the larger power boats are for this class—men new to the game and without a knowledge of the water. It may be the duty of an architect to give such a customer what he thinks he wants, or it may be better for both for the architect to give him what the architect thinks he wants. But in either event the boat lacks that something which shows the loving thought that must go into the design of every boat that is completely successful—the thought that pro-



-NOTES-

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KEEL WHITE OAK SIDED 3" 20"
STEM 1" 20"
SHAFT LOG WALK 2 1/2" X 3 1/2"
STEEL BAND ON TRANSOM OAK 1" THICK
CLAMP 3 BAND PINE OAK 1 1/2" X 2" LOWER 1 1/2" X 2"
BULGE STAYING 3" PINE 1 1/2" X 2"
FRAMES WALK 1 1/2" X 2 1/2" 10-10 1 1/2" X 1 1/2"
PLANKING PINE FULL 3 1/2" THICK
DECK WALK 1 1/2" X 2 1/2" 10-10 1 1/2" X 1 1/2"
RINGS HICKORY MARKED 10
RUBBER BAND 1" THICK-BROWN HANGERS
WIRE TALKER ROOF 4-3" ARRAYS

DECK 34" PINE FORWARD DECK CANVAZED
FLOORS WALK 34" THICK 3 PROBR ENGINES 2" WALK
SPEED WERE NAMED L
ENGINE 5008 BAR 26" THICK
" STANGERS BAR 19" -
FLOOR BEAMS BAR 34"x18"
FLOORING 34" PINE
BRUSH, SLUGS, SPARS, NAILS-CANNING, HALF POUND
FLOR POLY, PLANK BEER BAR OR HANDBAND
IS AGRED UPON.

Construction Plans and Scantling Data of Sizzler

duces a sweet, shippy, complete boat, that looks well at any angle, behaves well under all conditions, and seems to like the water. I have in mind one such power boat, designed by Charles D. Mower, named Byrosel. Any one who has seen this boat in a confused sea cannot have failed to admire her shippy appearance, and the ease with which she does her work. Of course there are many others, but mention of this one is sufficient to illustrate my point, which is, that careful thought, and an aim to adapt a boat exactly to the conditions she is to meet, coupled with scientific application of that thought, are needful to make a successful boat.

So far as the thought went, I believed I had given enough of it to my design. I knew what I wanted the boat for. Besides the runabout service mentioned, I wanted to go deep-sea fishing. In fact, this bulked pretty large in my plans for another year's sport. Then I wanted a boat in which I could run with safety and ease from the Maine coast to Boston, or the reverse; and though I did not want a cruiser, I thought I could get enough room under the forward deck to install a pipe berth for such voyages. In short, I wanted a combination of sea-boat and runabout, that would behave equally well in rough and smooth water, could be driven easily, and would be sufficiently heavy to stand up to whatever might come in the course of the day's work.

With these ideas worked out, and my model in my trunk, I returned from vacation. In a few days I met Ralph Winslow, a designer and yachtsman. His days of labor over the drafting board have not prevented him from keeping closely in touch with the sport, and living among the yachting "huskies" of Quincy, who leave no moment idle when they may sail, from March to November, he seldom lacked opportunity to indulge his bent. Although physically in the bantam class, I have seen him do work on a racing yacht that would stump some heavyweights. From getting an anchor to setting kites on a 40-footer, Winslow is the ever-ready little yachtsman. Some years of acquaintance had given me a high opinion of his sporting spirit, while as a draftsman I knew him to enjoy an excellent reputation. Our fellowship in sailing enabled me to approach Winslow without hesitation in confession of my first steps in the matter of modeling a power boat, and a request that he take the block and make lines from it.

This he did, with what result may be seen from the reproduction of the lines in this article. To what degree the design represents Winslow, and to what degree Thompson, it would be hard to say. The lines, the calculations of displacement, the sheer and the general tone of the work, were Winslow's. The interior plan, dimensions and general character, were in accord with the aspirations of the owner. The combination was pleasing to me, and satisfied Winslow.

Before the lines were done I had decided on a name for the boat, and when the drawings were handed over to me I announced that name to the designer. It was Sizzler. According to the man who made the dictionary "to sizz" is a verb in good standing. "Sizzle" is defined as "a hissing or sputtering sound," or, as a verb, "to be very hot, as if hissing." As most small power boats remind me of a doughnut in a kettle of hot fat, I thought "Sizzler" an appropriate name for my craft. Also it conformed to the terminology of what I might call my fleet names, and was a proper pendant to Twister, Jester and Duster of honored memory.

So as Sizzler my craft shall be known henceforth in

these pages, where, the Fates willing, her fortunes will be followed for the benefit of those unschooled, like myself, in the art and mystery of making a boat go by power other than that of the winds of heaven,—to which let us all pay abiding and proper respect.

A glance at the accompanying plans will show the chief features of the boat's model and accommodation. I wished the engine housed, but not under a fixed deck. Neither did I fancy those turtleback contraptions I have seen on various launches—the kind that part in the middle and open out like a beetle's wings. When on edge, like a pair of board fences, they are ungainly and lubberly. Furthermore, unless you have some device for fixing them in place when up, they are likely to fall, and strike you on what my friend in the street is pleased to term your "cocoa."

Believing that some of the best features that have been long established among practical boatmen are never excelled by designers, I adopted the old-fashioned wide sliding hatch as a covering to my engine space. I had seen such a slide on a converted catboat—one of those pictured in the first article of this series, in the October RUDDER—and it seemed just the thing. I measured it, and found that it was 3 feet wide and 3 feet 6 inches long. Looking at my deck plan, I found I could have a slide even wider, as the flare in the bow gave plenty of deck room on which the slide could rest when shoved forward to its full extent. Therefore, it was made 3 feet 3 inches wide in the opening, and 3 feet 9 inches long. This would give me plenty of room to get around my engine on all sides.

To strengthen the boat amidships, and compensate for cutting away the deck for the slide, I planned a high sill to the gangway, and this Winslow worked in to my satisfaction, and in a way that could give strength without clumsiness. In place of doors to close the companionway he planned two drop slides, running in sockets. The top one was to be heeled with brass, which would project on one side enough to engage a similar piece on the top of the slide below. Thus, when one was raised, it would pull the other into place, and when the top one was lowered, the bottom one would drop also. This contrivance is common enough in some quarters, but in others you do not see it. It is well worth working out.

My cockpit plan I gave serious attention, measuring each dimension to get certain results. First I wanted a steering seat on the port side. Some people like to steer on the starboard side. I don't. It is more natural to sit on the side on which you leave boats in passing. Then you are not craning your neck to see the other fellow coming. Furthermore, it is natural to reach for your controls with your right hand, and if seated on the left, they come in the right place to be reached easily.

I notice that Skipper Day says a boat should be steered from her center line, and nowhere else. In a cruiser I should say that was the right thing, and the only thing to be considered. With a runabout, in which a point or so one way or the other makes no difference, and in which a compass course is not run once in a dog's age, it is different.

So I planned a box seat on the left, 17 by 20 inches, for myself, and a similar one on the right for my guest of honor. As this guest tips the beam at around 250, and the writer of these lines is a largish lad of 217, it will be seen that these seats should be placed with due consideration to centering weights, and I expected that when owner and guest were in place, and all was ready

for the fishing grounds, Sizzler would be trimmed about right.

The fact that the seats are boxes suggests a space inside, and the filling thereof. The left seat was designed to have a zinc lining, for the carrying of ship's stores. In these bottled spring water bulks rather large, and as it is better on a Summer's day for cooling, a bit of ice is needful. Hence the zinc. The opposite box was intended to hold a bucket of sand, a couple of fire extinguishers, and our fishing lines.

Both box seats were planned to be readily detachable. Each had a hinged back, and when not in use this back could be turned down flat. The hinges of the seats were designed to be placed on the forward side. Thus by turning down the back and turning up the bottom, you could get at the contents of the box in a second.

Between the seats a passage 18 inches wide was left. The purpose of this was twofold—ease in getting to the seats, and a clear floor space over the shaft. To give the seats elevation that would insure a clear view past the stem, and also to leave a clear space under the floor timbers for the shaft and reverse gear, the floor was raised to a line at the rear of the seats, giving a modified raised-deck effect. Although the level was raised only 7 inches above the cockpit floor, abundance of room was obtained under the raised portion of the floor.

What might be called the main cockpit was made plenty large to carry five or six people. The stern seat would take care of three, and there was space enough left for two or three camp chairs. It was not my purpose to aim at carrying a crowd, and the open space of the cockpit was designed rather for taking a fish-tub. Probably some of my readers may sniff at the idea of messing up a nice new launch with fish gurry. To this I can say that if you have a big tub to throw your fish into as they come over the side, and carry a sponge to wipe off blood and scales that may happen to get on the boat, you will have no trouble. Another thing to have right in a boat to be used for fishing is the arrangement of the ceiling and floor. To my mind the best way to ceil a launch is not to ceil her at all. In other words, leave the skin and ribs bare. Then you have no enclosed spaces to gather moisture, and sweat in hot weather,

inducing rot. The floor, to my mind, should be laid loose; not so loose that it will rattle when you step on it, but loose enough to come up easily and completely. Then when you want to wash up the boat after a fishing trip, you can take out the floor completely, and have her bare inside before you. When you are looking pretty, and carrying a party, have a piece of linoleum down, and perhaps a bit of scarlet carpet, neatly bound at the edges, for a sort of prayer rug before the cross seat aft.

This seat, back, bottom and all, was planned to come out also. The space under it was designed to carry as many life-preservers as would be needed, at one to a passenger, as the law demands.

Back of this seat will be seen a towing bitt. Some people prefer a cleat here. Personally I like a bitt. It has a shipshape look, and is certainly less likely than a cleat to jam a rope when you catch a sudden turn over it. I do small towing jobs for the pleasure of it when an opportunity offers—or rather I did, in my first brief season as a "gasolener" Down East. A friend now and then came along in a cruising yacht from Boston way, and being becalmed, accepted my line with joy. Once in a while I met a puff-boat broken down—water in the gasolene, pump out of commission, batteries out, or some such mischance—and my line was always ready for him. Then there was the pleasure of cruising for logs that had come down some river and escaped to sea. By taking them home I served two ends; relief from the danger of their presence, an obstruction on the face of the sea, and a replenishment of the home woodpile. It is hard to say which feature of this good work gave the more pleasure.

So I wanted a towing bitt, and Winslow drew one in, good and strong, and still not ungraceful. In short, everything about the design pleased me, and when I sent on the blue prints to my superior officer, First Mate Bieling, of THE RUDDER, and received back word that it was "A pretty good 'b'ot." I felt that with Winslow's help I had gotten out something that might prove of value, by suggestion or otherwise, to RUDDER readers.

The details of the boat's construction, powering, launching and trials will afford material for further remarks in these pages.



HOW TO BUILD A TWENTY-FOOT POWER CRUISER—SEA ROBIN

William Atkin

THIS Winter some time, rest awhile and think things over—have a little think all by yourself. If you are a young man without much money, and a bit of time now and again, delve into the arts and crafts of boat-building. Winter evenings in the seashore towns are long, and even for those close to town there is very little to do. Yes, of course, there is Main Street, the boys, and numerous hang-outs. But what's the use? Summer is coming again soon, and why don't you build a boat? No; it won't cost too much. Appended is a complete list of the materials needed, their cost, and—if it totals over much, hang it up at the Stickum Lumber Company. \$456.97! That's not so much, not when you say it quick. It would buy a Brush automobile or perhaps some other dust-collecting land-wagon, but it will not buy an equal of the good ship Sea Robin that you have just started in to build.

The layout of the keel with stern and stem attached is shown on Plate 3. It is best to lay this out full size on building paper, or the floor. Paper is best though, for it can be cut up, thus making excellent patterns for marking out the lumber. As shown, the stations are 4 feet apart, the base line 2 feet 6 inches below the water-line and parallel thereto. The sheer is 2 feet 9 inches above the water-line forward, and 1 foot 8½ inches aft, and is straight. The dotted lines show the rabbet, and the back rabbet, the distance of the rabbet from the water-line and its width is given on the drawing.

Select a sound piece of yellow pine 2⅞ inches thick

by 5 inches wide and 18 feet long for the keel. The deadwood must be built up of 2⅞-inch thick yellow pine and after boring 1½-inch hole for the propeller shaft, securely fasten together with ¾-inch galvanized rod.

Fig. 2 gives an excellent idea as to how best to guide the auger bit in boring the log. Fig. 3 shows graphically how to cut the rabbet on the stem, which is hackmatack knee 2⅞ inches thick: it is obvious that the balance of the keel is done likewise. From Station No. 3 aft, the rabbet is formed by screwing a ½-inch piece of oak 3½ inches wide to the deadwood, thus making a packing for the calking.

Fig. 4 shows the stern and the method of fastening to horn timber. Three widths of ⅞-inch white cedar cleated in the manner shown, with the joints well painted before fastening, makes a first-class job. In place of a cumbersome knee use a small brass angle for bracing the stern to horn timber. Part of the timber the thickness of planking extends under the stern flush with the after side. The bevel for planking is best cut after the forms, clamps and chine pieces are in place.

After cutting the scarfed joint for joining the stem and keel, paint the surfaces that come together and bolt together with two ¾-inch galvanized iron bolts. In boring the holes, bore the keel first, then bore both bolts in the stem at a point 1/16 inch further forward, so that when the bolts are driven home the joint will be drawn tightly together fore and aft as well as parallel to the

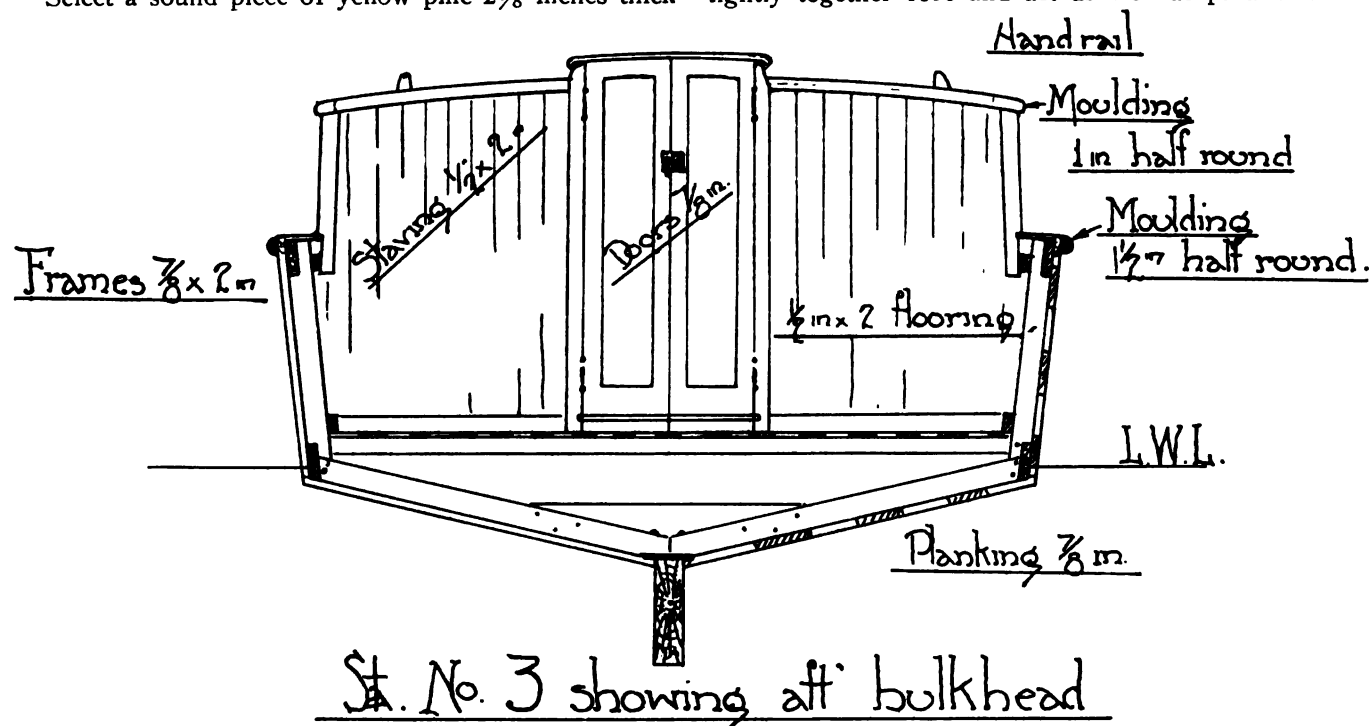


Plate 1. Midship Section of Twenty-Foot Cruiser Sea Robin

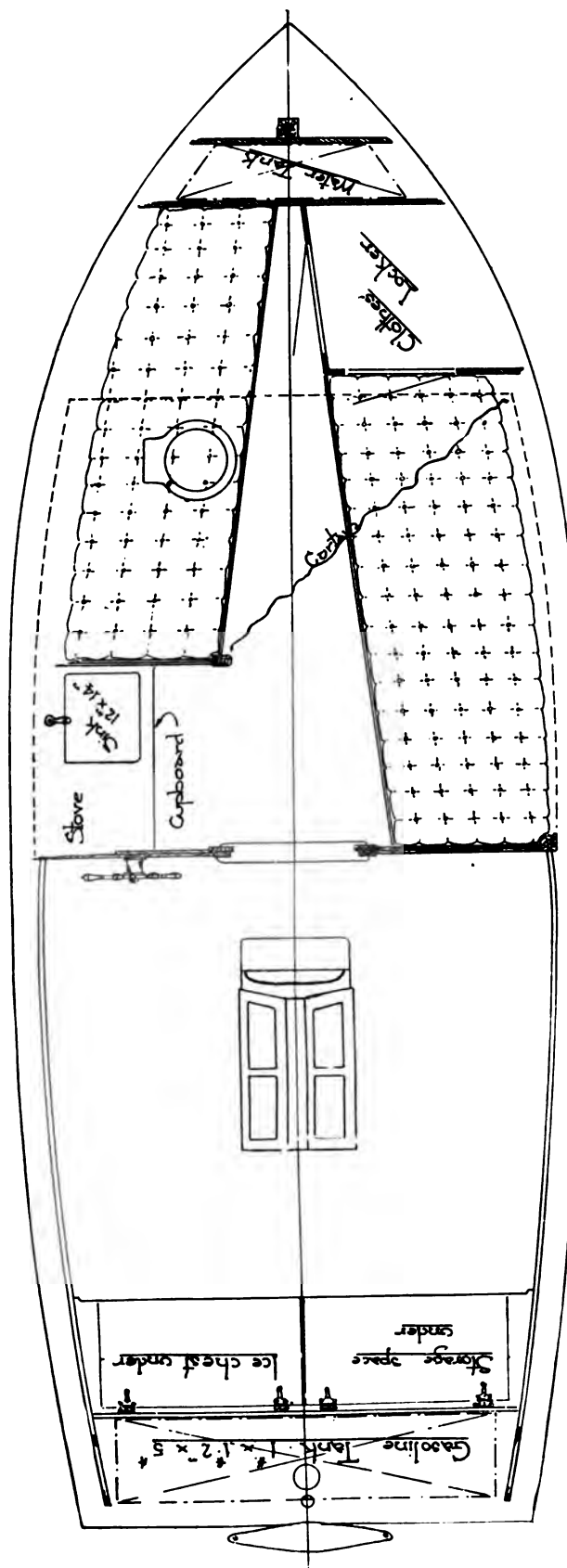
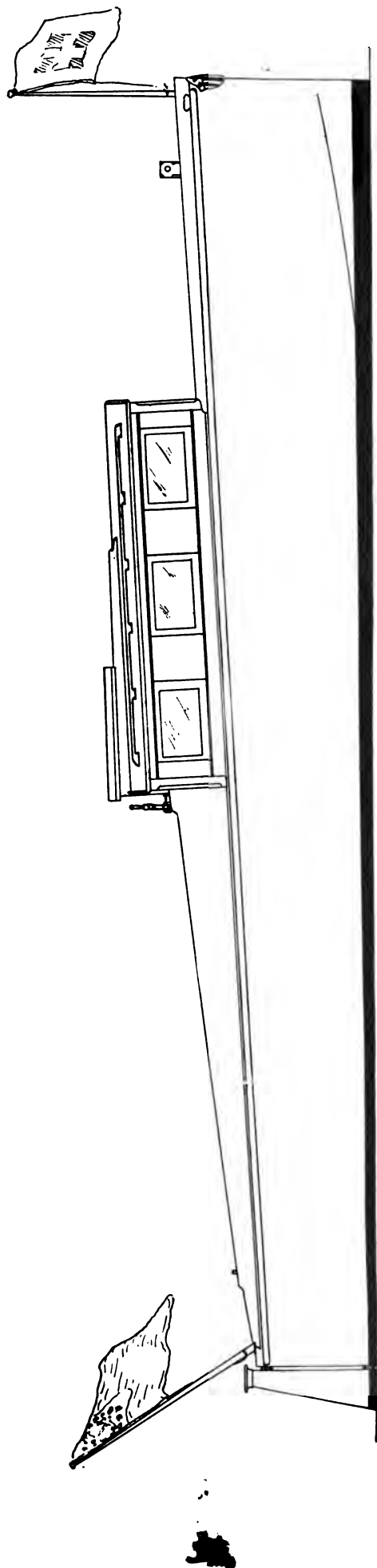


Plate 2. Outboard Profile and Accommodation Plan of Twenty-Footer Sea Robin, Designed by Mr. William Atkin, Haleite, L. I.

water-line. Continue cutting the rabbet across the joint and the keel is ready to set up. Don't forget to fit stopwaters where shown—these are $\frac{3}{8}$ -inch dowels driven through a $\frac{3}{8}$ -inch hole bored through the rabbet.

Use $\frac{7}{8}$ -inch spruce for making the forms. The dimensions are given on Plate 3. 'T would be best to lay these out on building paper, as it will make it more easy to mark out the lumber. Draw in the water-line and place the cleat across just on the sheer-line, also draw in a vertical line on the center of each form. These will help a great deal in setting the forms in place.

Stretch a line perfectly level along the floor where the boat is to be set up and place keel blocks cut to the heights shown on the plan plus the distance between the level line and floor. Make the blocks of 3 by 5 spruce and stay in place as shown on Fig. 5. Plumb the stem and stern, stay them securely and commence setting up the forms. These must be set plumb and square with the center line; hold them in place by a $\frac{7}{8}$ by 10-inch plank through the center and with stay laths from the rafters or ceiling above.

The notches for clamps and chine pieces have all been cut from the forms, and if they have been made to dimensions will fair in nicely. Bend the clamp on first. This should be of spruce or yellow pine $\frac{7}{8}$ by 4 inches, 20 feet long, dressed all around and fastened to each form, the stern and the stem, with two 2-inch screws. It will be necessary to cut a knee (see Fig. 6) at the forward end, as the fastenings in the stem will not be enough to hold the clamp in place. The chine piece is made and fitted in the same way.

You will notice on the construction plan, Plate 4, that the frames on the topsides are 12 inches apart and spaced each way 6 inches from the forms, but that those on the under body are forward $\frac{7}{8}$ inch, the width of the frames. They are all of oak $\frac{7}{8}$ by 2 inches, and all of the top ones are notched over the clamp and chine so as to come flush with the outside. Fig. 7 shows plainly how they are fitted. Two $1\frac{3}{4}$ -inch No. 10 galvanized screws each end are ample to hold these in place.

The planking of this craft is $\frac{7}{8}$ -inch cedar. It would be well to fit two or three of the top plank or wales before fitting the bottom frames, for it is necessary to heel the hull down when fitting the lower frames, and this will hold the forms true.

Six planks to each side will be sufficient, each one to be fastened to the frames by $1\frac{1}{4}$ -inch No. 10 galvanized screws plug bored two to each frame. It is best to have the sheer or uppermost plank about 1 inch wider than the others, so that when the moulding is hung along the sheer the planks will all appear to be of the same width.

Divide the midship frame into six parts, five being equal, and one, the uppermost, 1 inch wider. Treat the stern and the stem the same, then tack a light batten through these points and you will have the widths of the planks at each frame. If the batten makes a fair line, all well and good; if not, steal a little from one or the other so as to make a fair line.

To determine the shape of the sheer-strake use a template of $\frac{1}{4}$ -inch wood. Clamp it along the sheer without springing it edgewise and after it is in place, mark the sheer from the points on the forms and frames. A line drawn through these points will give the shape of the top edge: the widths can be taken off the frames and thus the shape of the lower edge obtained. It is obvious that the lower edge of the strake above will be the shape of the top of the next strake and so on till the topsides

are finished. Of course both sides are alike, or should be, so that in each case the strakes can be gotten out at one time. In fitting the seams be careful the back makes a tight joint, else the calking, when it is driven in, will go right through.

After having fitted and fastened three of the top planks, remove the bracing and heel the hull down on its bilge. This will allow you to fit the bottom frames more easily—these will be of the same dimensions as those on the topsides, $\frac{7}{8}$ inch by 2 inches. The forms are still in place and from them one can spot the bevel every 4 feet, to which the lower edge of the chine must be cut to allow the bottom planking to make a watertight joint. Frames 1 to 10 inclusive must be mortised into the keel at the lower end, fitted against the chine and the top frame riveted and nailed fast. Fig. 7 gives an excellent idea of this process. Aft of No. 10 the frames are nailed on to the keel—of course after being cut to fit as shown in Fig. 8. Next cut in the floors—these are of $\frac{7}{8}$ -inch oak and are fastened with rivets or boat nails; as shown they fit beside the frames, not on top.

Continue with the topside planking and when completed fair off the lower edge to the shape of the chine and frames and begin planking the bottom.

The garboard strake, that one next the keel, is the only difficult one to fit. If it is possible have some one who has done it before help you. The joint or seam against the keel must be a close fit. Oh, well, if you can't find some one to help, try this:

The operation will be similar to finding the shape of the sheer-strake. Use a $\frac{1}{4}$ -inch template about 8 inches wide and full length. Cut this to fit approximately and then clamp it into place, being careful as before not to spring it edgewise. Equal distances are marked with a pair of compasses from the rabbet and are marked upon the template at intervals of 6 or 8 inches. The template is then taken off and tacked upon the face of the $\frac{7}{8}$ -inch board to be used as a plank, and these arcs used as centers for the intersecting arcs shown on Fig. 9. A line drawn through these will be the line to cut and it will fit the rabbet exactly. The other side is, of course, obtained in the same way. For the edge away from the rabbet snap a straight line, leaving a width of about 9 inches in the center—the ends will of course be narrower—this edge will be the shape of the lower edge of the next plank. The forward end of this plank has a rank twist and it will be necessary to soak it thoroughly in boiling hot water else it will split. Have a galvanized sheet iron pin made 10 inches wide, 8 inches deep and 8 feet long. It will cost \$6.50. Block it up outdoors in a convenient spot with bricks, so as to allow a fire to be built under it, and after filling with water—start something—it won't be long before the whole neighborhood is aroused, for, believe me, there'll be some smoke and steam—nix on the comedy. When it's boiling good, slow the fire down a bit at one end and drown the forward ends of the neatly cut garboards. Half an hour of boiling will allow of their being twisted into a Grecian bend, so clamp them into place. And then? Well, just sit down and cool off.

After they are dry screw them fast. On the longest frame, about No. 12, space off seven equal spaces from the outside edge of the garboard. The balance of the planking will be plain sailing as they are all parallel, following the outside edge of the garboard. Where they are screwed to the chine, place the screws at least 3 inches apart, and paint the under side of the plank and

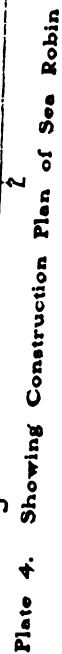


Plate 4. Showing Construction Plan of Sea Robin

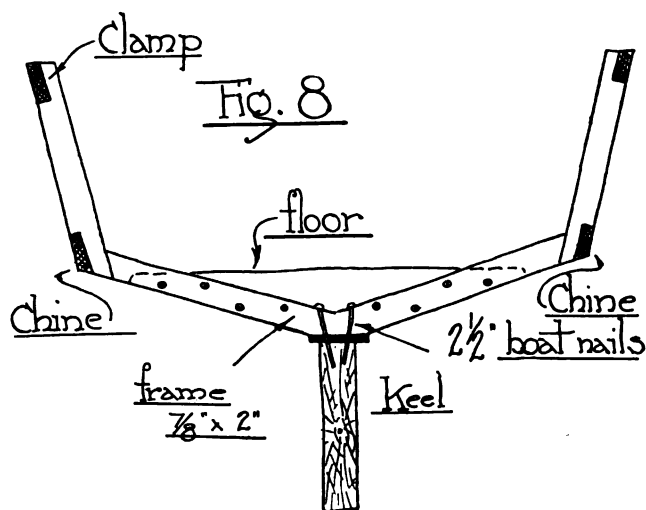
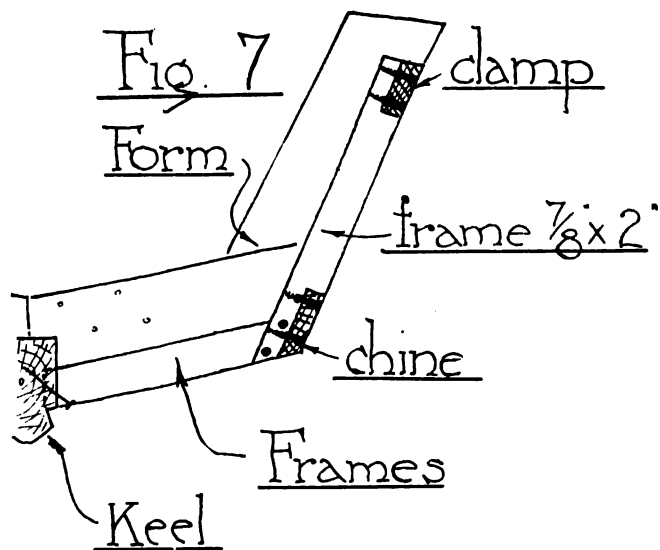
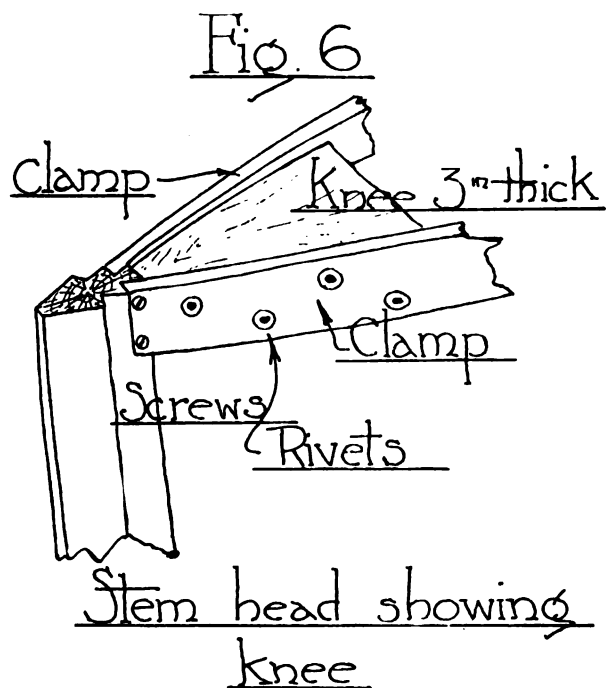
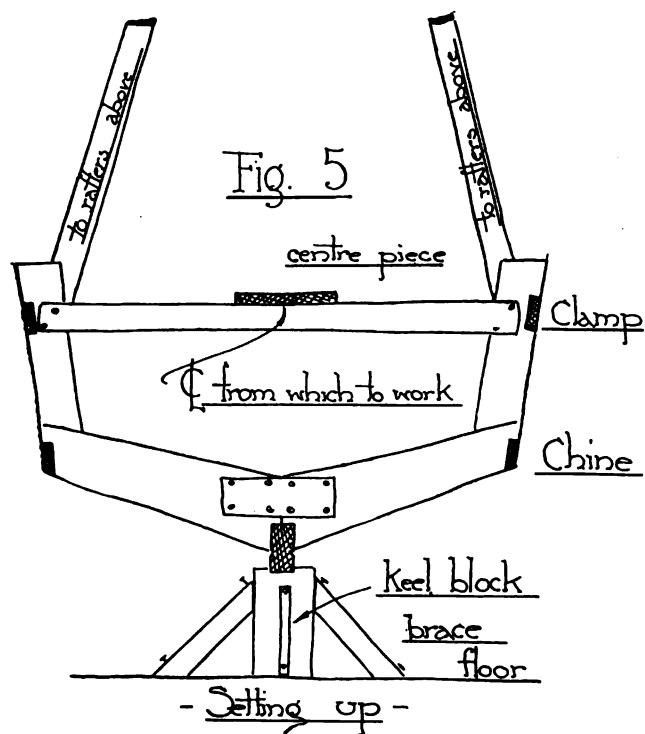
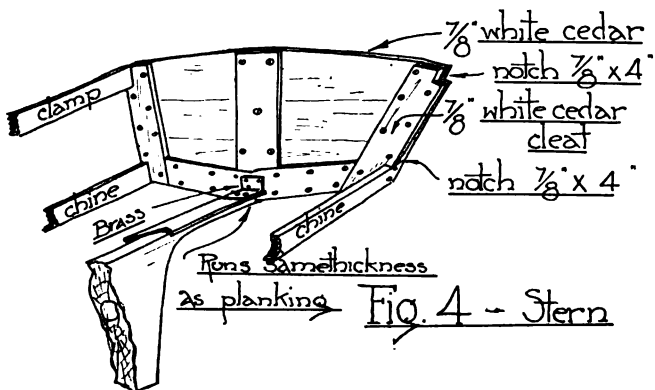
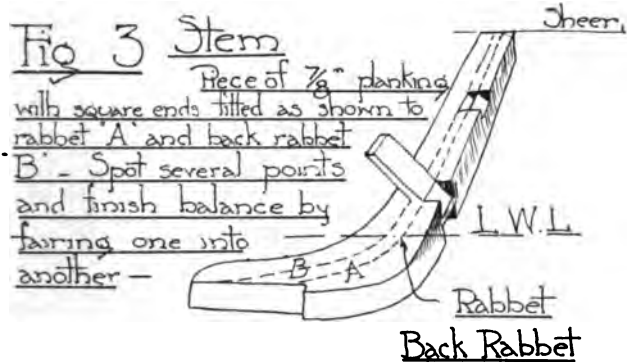
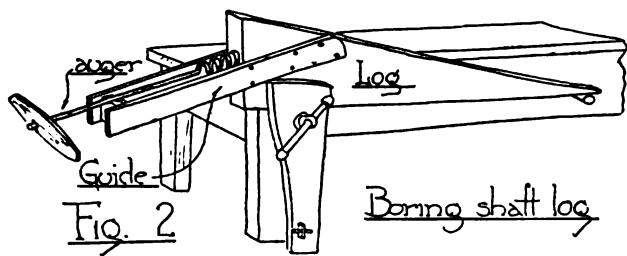
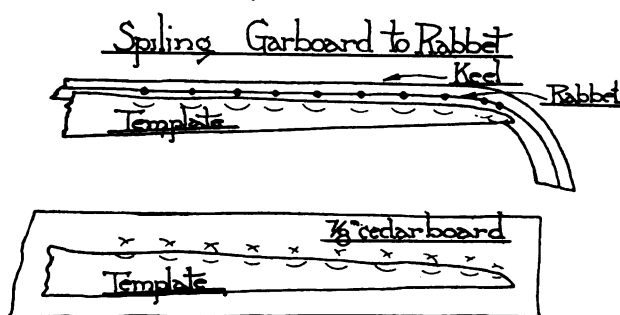


Fig. 9



the face of the chine where they come together. Have the surface very smooth and fair and no calking need be driven into this joint.

All of the fastenings for the planking are bored first with a $\frac{3}{8}$ -inch auger for the plug, this to a depth of $\frac{1}{4}$ -inch, then through the plank with a drill just large enough to allow the screw to pass through, then into the frame with a drill small enough to allow the screw to get a good grip.

After plugging all the countersunk screws, plane the hull off roughly, after which prepare for the calking. It is impossible to fit all the seams so that they are open at the face and closed tight at the back. In most boat-building shops the seams are opened, either by driving a small wedge-shaped wooden block along them (see Fig. 10) or by a rat-tail file ground smooth, the sharp end of which is forced along the seam, thus opening it. For a small boat such as this, cotton wicking about four strands in each seam is sufficient. Roll it in with a calking wheel on the topsides, but below the chine calk with an iron. After calking pay all seams with red lead. Plane the under body and give it one coat of red lead. Before finishing the topsides 'twould be best to finish up the decks, install the engine, piping, etc.

Shore the hull up again, see that it is level athwartships, fore and aft—it must be, for it is still on the keel blocks—and prepare to fit the deck beams and finish the interior.

First tack a batten along the sheer and see that it is perfectly fair and straight. Use $\frac{7}{8}$ -inch cypress for the deck beams. There is so little crown in the deck that all of the beams could be gotten out alike and faired up after they are in place. Lay the first carline out as per Fig. 11, and make the others like it,—only, of course, of the proper length to span the deck at its appointed place.

As can be seen on the construction plan, there is an inside clamp—this forms a shelf for the deck beams to rest upon. The forms must be taken out to spring this

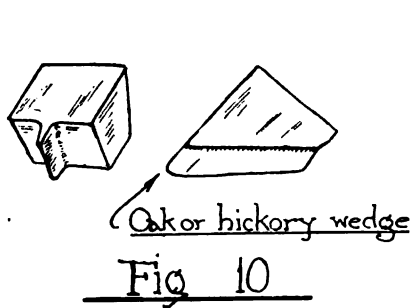
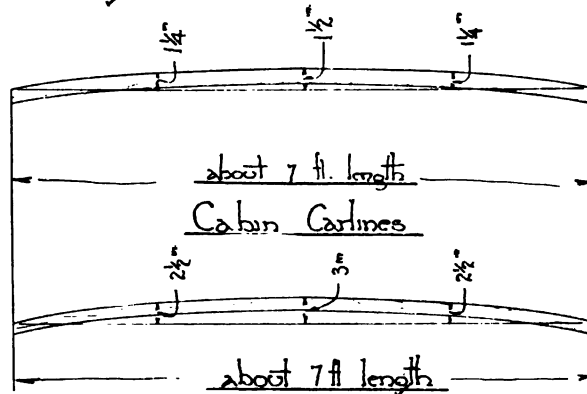


Fig. 10

What I am
pleased to call
a dingy
for opening
the seams
prior to
calking

Fig. 11 Deck beams



in place, so fit temporary stays and beams until this and the deck beams are in place.

Beginning to look like a boat now, isn't it? Some class to "her" now—but wait!

Lay the deck with tongue-and-grooved cypress $\frac{1}{2}$ inch by 2 inches to 3 inches wide, fitted closely and nailed to the beams with galvanized wire nails. After it is on, counterpunch all the nail heads, plane it off and cover it with No. 12 canvas. Yes, along the side too! Turn the canvas around over the edge and tack fast with $\frac{1}{2}$ -inch copper tacks.

The engine beds can be fitted now and the engine with all its fittings be installed. The deadwood is bored, so stretch a line through the hole, see that it is in the center both forward and aft, and make it fast some distance forward of the place where the flywheel will be. The beds are of $2\frac{7}{8}$ -inch yellow pine, the distance between them and the height depending upon the dimensions of the engine used—fasten them through planking, frames and all with $\frac{3}{8}$ -inch galvanized bolts, letting the heads into the planking.

Somewhere among the supplies for building there is a piece of $1\frac{1}{2}$ -inch diameter lead pipe; this is to line the shaft hole with. After sliding it through turn the after end against the deadwood as shown in Fig. 15 and drive a wooden plug through to expand and cause it to fit tightly against the sides, the inboard end must be turned and fitted to the deadwood making a watertight joint. The stuffing box is fitted to the outside end and bolted in place with bronze lag-bolts. Have a canvas gasket well painted with red lead between the two surfaces so as to make sure of a tight joint.

Setting the engine and reverse gear is more a matter of patience and care than anything else. As you have the stuffing box in place, begin from the after end aligning the gear to the shaft, the engine to the gear, and when all is as it should be—that is, perfectly aligned up—bolt them in place with lag-bolts. Finish all of the

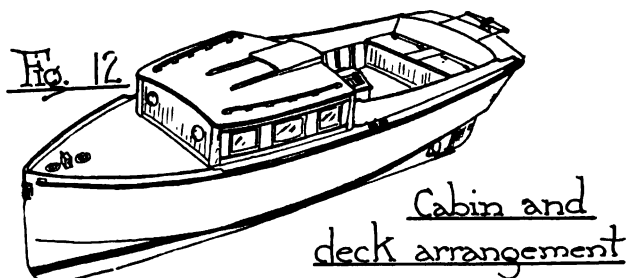
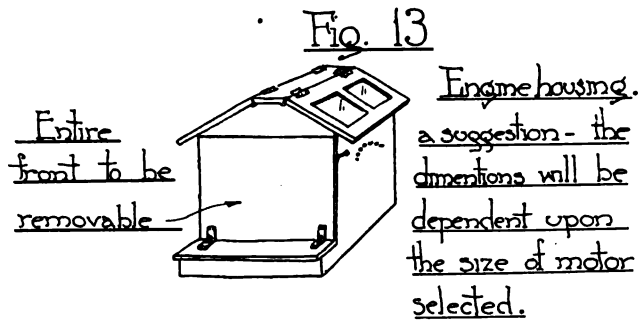


Fig. 12

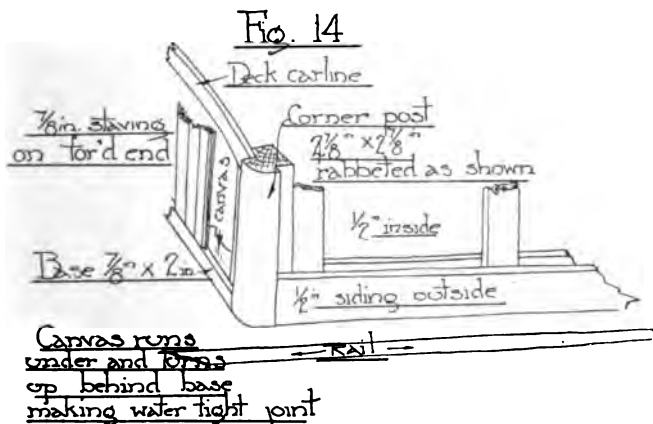
Cabin and
deck arrangement



exhaust and water piping, using 2-inch galvanized iron pipe for the exhaust and brass pipe for the water connections; before laying the cockpit floor being careful to keep all piping so that it will be below it and out of sight.

Fig. 12 gives a good idea of the cabinhouse and deck arrangements. The forward corner posts of the cabin are 6 inches aft of frame No. 5 and 14 inches high, the height of the cabin sides. The after posts are 6 inches aft of frame No. 11 and are equal in height to the forward ones. They are set square with the deck making the window frames and sash square and more simple to build. These posts must be rabbeted to take the cabin siding, which is of cedar, $\frac{1}{2}$ inch in thickness, and the forward and after ends, which are of cedar, $\frac{7}{8}$ inch in thickness, tongue-and-grooved staving. (See Fig. 14 for details of posts, staving, siding, and an excellent way to make the joint between the cabinhouse and deck watertight.) There are three windows on each side 10 inches high and 15 inches long; fit the sash for these in solid, for they will be more watertight so, depending upon the doors aft and the port lights for ventilation.

The cockpit floor is 4 inches above the water-line, beams being of spruce $\frac{7}{8}$ inch by 2 inches running across on every frame. The $\frac{1}{2}$ by 2-inch tongue-and-grooved yellow pine flooring is to be nailed to these. The cockpit extends aft from the cabinhouse to frame No. 19. The flooring must be fitted tightly and planed; after it is painted three coats it will be most tight, so will not need to be calked. Build a coaming or base around the opening for the engine, the sides, and ends of cedar, $\frac{7}{8}$ inch by 2 inches high, fitting close and forming a watertight joint. Cut scupper holes in the two after corners and through the planking; afterwards fitting a 1-inch lead pipe, flanging the ends in the same manner as 'twas done in making the shaft-log tight. Any water that may come aboard will flow out through these and

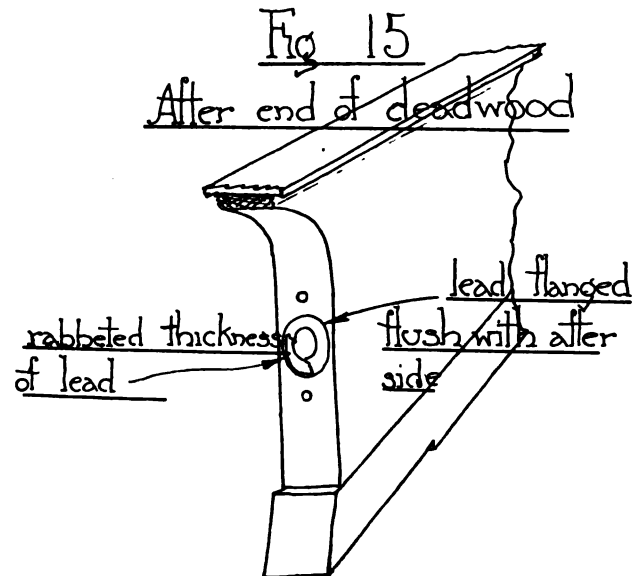


although they are not necessary will save much pumping during rainy weather.

The gasoline tank is securely blocked into place under the after deck and piped to the engine with copper tubing, about $\frac{3}{8}$ inch in diameter. A copper tank is best, and have it made well of heavy weight copper, no leaking joints or connections; too, allow some way of removing the tank in case of leakage.

The ice-box and a space to store dunnage are under the seat across the after end of the cockpit, side by each; line the ice-chest with zinc and fill in the space between it and the wood with cork or wood shavings—allow for a drain to spill into the bilge.

Some sort of a covering over the engine is one of the greatest comforts aboard a small boat like this—deadens the noises and keeps the cockpit free from oil and dirt. The engine controls can easily be extended so as to be accessible outside of the housing, or better still, at the wheel. Fig. 13 gives a very good design for such a covering—the top lids are fitted with glass lights and are hinged; also it is well to have the center piece across the top hooked into place so that the entire top may be



taken off. The front, too, is removable to facilitate starting and, as the whole house is made a unit in itself, it can be fitted over a coaming and held into place by hooks. Thus, in case of engine troubles the whole contrivance can be taken off.

A simple cabin arrangement is shown on the plans. Directions for fitting up the interior are hardly necessary, for if you have completed the boat thus far you will have formed your own ideas as to how the interior shall be constructed and laid out; at all events you will know considerably more about boat-building than you knew before beginning work,—or shall it be pleasure? So long as the weights remain about as placed on the plans small changes will not affect the trim to any noticeable extent.

Sea Robin will look well painted battleship gray, the cabin and coamings being of the same shade with decks, house top, and mouldings in buff. Underwater paint with anti-fouling green. And don't forget the splash of color on the figurehead forward—red, white and blue; some stripes and a few stars!

COSTS OF MATERIAL FOR THE CONSTRUCTION AND EQUIP- MENT OF SEA ROBIN

HARDWARE

| | |
|---|--------|
| 2 6" port lights..... | \$8.00 |
| 4 pr. flap hinges, brass..... | .60 |
| 6 pr. butt hinges, brass..... | 1.00 |
| 2 bow and stern flagpole sockets..... | .60 |
| 1 galvanized cleat, 6" long..... | .30 |
| 4 galvanized rudder eyes, 5/8" eye..... | .20 |
| 1 galvanized rod, 9-16" diameter, 2' long..... | .20 |
| 2 stern chocks, 4" long..... | .20 |
| 2 cabin door hooks..... | .20 |
| 1 cabin door lock..... | .60 |
| 1 galvanized rudder yoke, 18" long..... | 1.00 |
| 1 galvanized iron steering wheel, 18" diameter..... | 3.50 |
| 24 ft. 1/4" galvanized tiller rope..... | 1.44 |
| 6 single check blocks, 2" sheave, brass..... | 3.00 |
| 1 galvanized iron turnbuckle..... | .50 |
| 3 ft. lead pipe, 1 1/2" O. D..... | 1.40 |
| 5 ft. 1 1/8" propeller shaft, bronze..... | 5.40 |
| 1 18" x 20" Hyde propeller..... | 6.00 |
| 1 1 1/8" stuffing box..... | 2.40 |
| 1 galvanized iron shoe..... | 2.00 |
| 2 brass 4" diameter hand hole plates..... | 6.00 |
| 2 brass door latches..... | .20 |
| 1 toilet door catch, brass..... | .70 |
| 1 galvanized iron water tank..... | 3.00 |
| 1 12" x 14" sink, stop cock and 9' pipe..... | 4.50 |
| 1 copper gasoline tank..... | 9.00 |
| 1 bilge pump..... | 2.00 |
| Side and head lights..... | 2.50 |
| 1 folding anchor, 30 lb..... | 6.00 |
| 150 ft. 5/8" diameter rope..... | 3.00 |
| Lining for ice chest and fitting..... | 5.00 |
| 1 water closet and fitting..... | 30.00 |
| 4 1/2 yds. No. 12 duck, 7' wide..... | 3.78 |
| 6 window sash and lights..... | 12.00 |
| 1 pr. doors..... | 5.00 |
| 1 bell..... | 3.00 |
| 1 alcohol stove..... | 2.50 |
| 1 whistle..... | 2.50 |
| 1 cabin lamp..... | 2.50 |
| Cushions..... | 12.00 |
| Total, \$153.72 | |

LUMBER

| | |
|--|---------|
| Planking, 350 ft. 7/8" cedar..... | \$28.00 |
| Frames, 30 ft. 7/8" oak, (2 pcs. 7/8" x 2" x 20')..... | 3.00 |
| Chine of clamps, 40 ft. 7/8" yellow pine, (4 pcs. 7/8" x 4" x 20')..... | 3.20 |
| Keel, 25 ft. 2 7/8" yellow pine, (1 pc. 2 7/8" x 5" x 18').. | 2.00 |
| Deadwood, 36 ft. 2 7/8" yellow pine, (1 pc. 2 7/8" x 12" x 10')..... | 2.88 |
| Engine bed, 30 ft. 2 7/8" yellow pine, (1 pc. 2 7/8" x 10" x 10')..... | 2.40 |
| Floors, miscel., 28 ft. 7/8" yellow pine, (2 pcs. 7/8" x 12" x 14')..... | 2.24 |
| Deck beams, cockpit floor, 28 ft. 7/8" spruce, (2 pcs. 7/8" x 12" x 14')..... | 1.40 |
| Corner posts, 6 ft. 2 7/8" cypress or cedar, (1 pc. 2 7/8" x 2 7/8" x 8')..... | .48 |
| Cabin carlines, lockers, etc., 84 ft. 7/8" cypress, (6 pcs. 7/8" x 12" x 14')..... | 6.72 |
| Forward deck, cabin roof, staving, 120 ft. 1/2" cypress, T. & G. V-edge staving..... | 7.20 |
| Cabin siding, 140 ft. 1/2" cypress, (10 pcs. 1/2" x 12" x 14')..... | 8.40 |
| Cockpit flooring, 50 ft. 1/2" yellow pine, (1/2" x 2").... | 4.00 |
| Moulds, 84 ft. 7/8" spruce, (6 pcs. 7/8" x 12" x 14').... | 4.20 |
| Total, \$76.12 | |

FASTENINGS

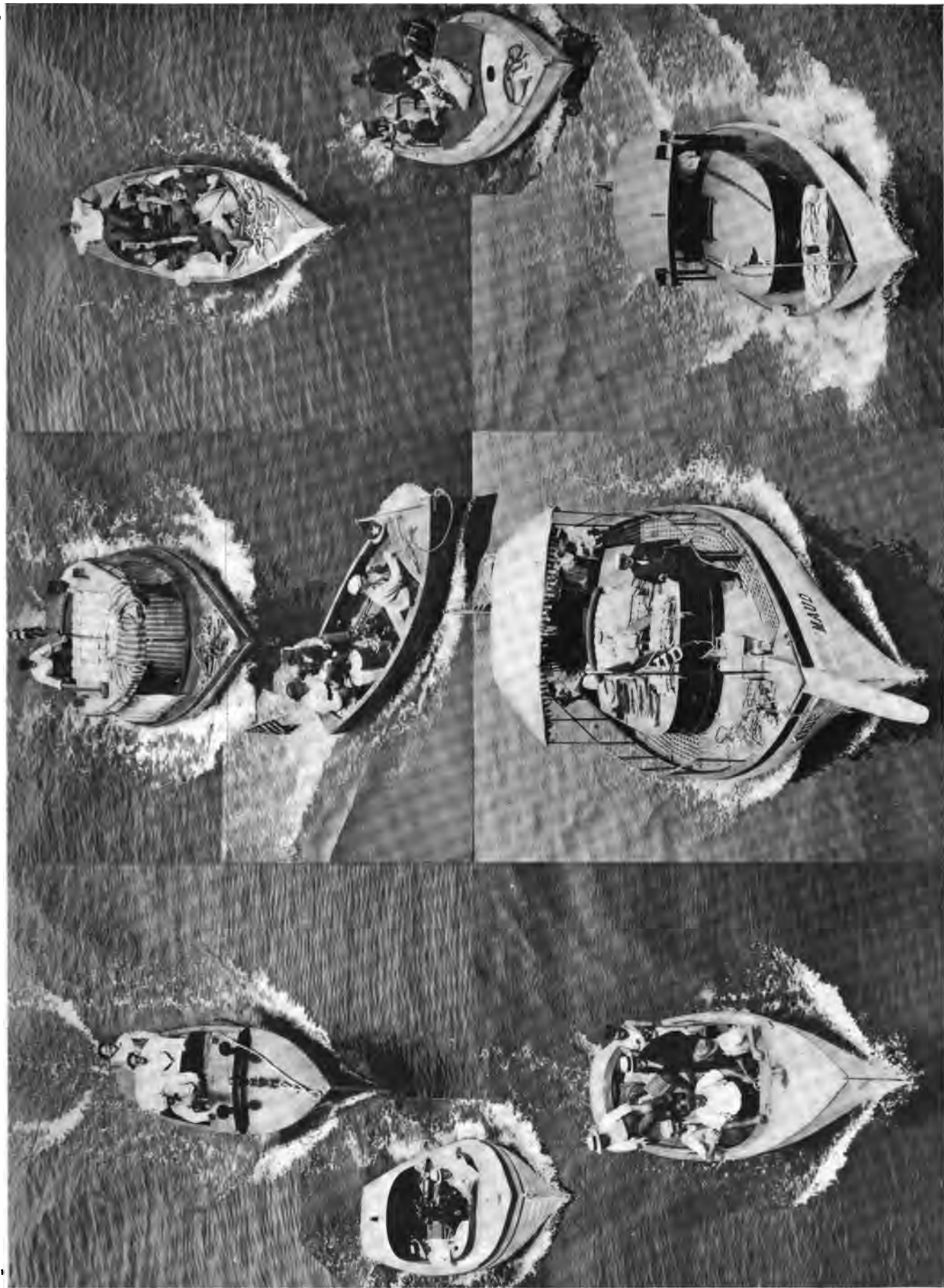
| | |
|---|--------|
| 10 ft. 3/8" galvanized rod..... | \$6.60 |
| 6 3/8" x 6" galvanized bolts..... | 1.00 |
| 12 gross 1 1/4" No. 10 galvanized screws..... | 4.00 |
| 1,500 3/8" cedar boat plugs..... | 3.75 |
| 5 lb 2 1/2" galvanized boat nails..... | .40 |
| 5 lb 1 1/2" galvanized boat nails..... | .40 |
| Other fastenings..... | 2.00 |
| Paint, varnish, wicking, putty, etc..... | 8.60 |
| Total, \$20.75 | |

ENGINE AND EQUIPMENT

| | |
|--|----------|
| 1 6 1/2-h.p. single cylinder engine..... | \$170.00 |
| 1 reverse gear..... | 25.00 |
| 1 2" muffler..... | 3.00 |
| 2-in. galvanized iron pipe and fittings for exhaust..... | 2.75 |
| 1/4-in. brass pipe and fittings for water connections..... | 1.09 |
| 3-ft. rubber hose..... | .54 |
| 6 ft. copper gasolene pipe and fittings..... | 4.00 |
| Total, \$206.38 | |

Total cost of Sea Robin, \$456.97





Photos by Rosenfeld **Is Power Boating Popular? Views Taken From City Island Bridge One Sunday Morning Last Summer**

HOUSE-FLAGS

J. Warren Sheppard

SHERLOCK HOLMES asked Watson how long he had lived in a certain house.

"Twelve years," said Watson.

"Walked up those stairs many times in those twelve years?"

"I did."

"How many steps in that flight?"

"I don't know."

"Lack of observation, Watson," said Sherlock of the pipe, violin and dope.

* * *

Have you ever been in the Skipper's sanctum sanctorum? I sailed in with a bundle of proofs. He was in a mood like Sea Bird finds him when the wind is shy and won't sail him away from the inevitable mail-pile. He accepted the proofs in silence. The only words my ear caught were, "We want some pictures of house-flags, —get some quick!"

When I was in the blue-jumper age I built a house. This house was three by six and four feet high. On the end of a broom-stick, flapping in the wind, was a handkerchief. I had tacked it on. It had a crimson field, the result of a scrap I had with Bill Haynes. I was proud of that flag. It was my house-flag (not registered).

In answer to the Skipper as he was in this squally mood, I got underway with an "Aye, aye, sir!"

Like Watson's answer to Sherlock, how many flags are there? I don't know. Anyway, we haven't the opportunity for observation in this line. Even if we had, how many would we know? Let me tell you how I got hold of the twenty-four old ones.

The following morning at 'leven I stood in the office—I mean an office—looking at six-feet-four with a Stanton beard and listening to a voice eight fathoms deep talking over a telephone.

The receiver was soon slammed up and the mountain described cocked his weather eye and said, "Well?"

"Pardon, is this—er?"

"He is," he replied.

"I want to ask you a question."

"Ask it," he replied.

"Will you tell me where to get a list of house-flags?"

"Contemporaneous?"

"I mean old ones, doctor."

"Why do you call me doctor?" he asked in a voice going down to ten fathoms.

"Doctor of the sea, I mean."

"I'm no doctor. I'm a captain and call me so."

"Yes, captain," I said.

"I can give you a good list of them. I have dug pretty deep to get those, too."

"I'm so pleased. I appreciate it, doc..."

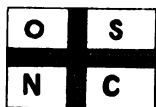
"I'm a captain," he howled (sixteen fathoms).

"Excuse me," I answered and gybed over, fetching the telephone booth.

"In this book," he said, hauling it from its environment of sea-yarns and RUDDERS, "you will get the information. You can buy one at Davy Jones's bookshop."

As the captain said "good-by to you" (one fathom), I took note of the title on this book cover, "The Clipper Ship Era."

I had asked him the honor of using his name in collaboration. He said "No" (twelve fathoms). I have no hard feelings towards the doctor. He helped some.



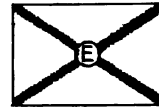
WHITE FIELD—BLUE CROSS
RED LETTERS = ORIENT
STEAM NAVIGATION COMPANY



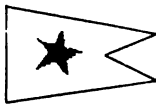
RED FIELD—BLUE AND WHITE
CROSS
QUEBEC LINE



BLUE FIELD—RED CROSS
WHITE DIAMOND
UNION CASTLE MAIL LINE



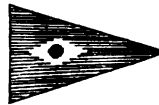
WHITE FIELD—BLUE CROSS
WHITE BALL—BLUE "E"
NATIONAL GREEK LINE



WHITE FIELD
RED STAR LINE



WHITE FIELD—BLUE EAGLE
AMERICAN LINE



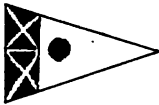
RED FIELD—WHITE DIAMOND
BLUE BALL
DOMINION LINE



RED FIELD
WHITE STAR LINE



WHITE-RED-BLUE-RED STAR
MALLERY LINE



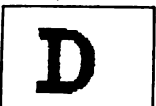
BLUE AND WHITE—RED BALL
ROYAL LINE



WHITE-BLUE-RED—WHITE STAR
RUSSIAN-AMERICAN LINE



YELLOW FIELD—BLACK CROSS
BLUE SQUARE—WHITE STAR
ITALIA LINE



WHITE FIELD
RED D LINE



RED-WHITE AND BLUE
ALLAN LINE



RED-WHITE—BLACK "A A"
AUSTRO-AMERICAN LINE

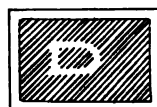


RED CROSS—WHITE
FIELD—RED LETTERS
NEW ZEALAND SHIPPING CO

House-Flags



CRIMSON FIELD - BLACK BALL
CHAS. H. MARSHALL



CRIMSON FIELD, WHITE BORDER
WHITE "D"
GEORGE DANIELS



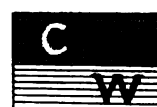
WHITE AND BLUE - RED BALL
JAMISON & TAPPAN



CRIMSON SWALLOWTAIL - BLUE CROSS
CHAS. R. GREEN



WHITE FIELD - RED CROSS
D. G. & W. B. BACON



BLUE, YELLOW - YELLOW "C", BLUE "W"
CROCKER & WARREN



WHITE FIELD - BLUE STRIPES
RED "C"
CLYDE LINE



BLUE AND WHITE - BLACK ANCHOR
YELLOW SHIELD
HAMBURG-AMERICAN LINE



BLUE FIELD - WHITE "M"
MORGAN LINE



BLUE FIELD - WHITE CROSS
SCANDINAVIAN-AMERICAN LINE



RED, WHITE, BLUE SWALLOWTAIL
GRINNELL, MINTURN & CO.



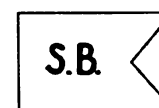
RED, WHITE, RED - RED "B"
VERNON H. BROWN



WHITE YELLOW - RED STAR
GLIDDEN & WILLIAMS



WHITE SWALLOWTAIL - RED CROSS
W. F. BROWN
R. W. CAMERON



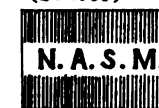
WHITE SWALLOWTAIL - BLACK "S.B."
SNOW & BURGESS



RED SWALLOWTAIL - WHITE
CROSS - BLACK STAR
SAM'L THOMPSON & NEPHEW



WHITE FIELD - BLACK CIRCLE
BLACK "W"
WARD LINE
(BURGEE)



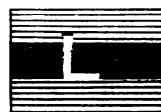
GREEN, WHITE - BLACK LETTERS
HOLLAND-AMERICAN LINE



WHITE FIELD - BLUE EMBLEM
N. GERMAN LLOYD LINE



WHITE WITH BLUE CROSS
FABRE LINE



YELLOW, RED AND WHITE
WITH WHITE "L"
A. A. LOW & BROTHER



BLUE AND WHITE HALF DIAMONDS
RUSSELL & CO



BLUE AND WHITE STRIPES -
RED BALL
NAPIER, PENNINGTON & CO.



CRIMSON SWALLOWTAIL, BLUE CROSS
W. F. BROWN
WELLS & EMANUEL



WHITE FIELD - BLACK HORSE
WILLIAM F. WELD & CO.



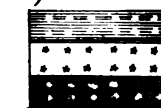
BLUE FIELD - WHITE DIAMOND -
BLACK STAR
WILLIAMS & GUION



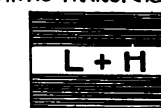
RED AND WHITE SQUARES
CANADIAN PACIFIC



BLUE FIELD - WHITE STARS - RED AND
WHITE HALF DIAMONDS - BLUE "L.B."
LLOYD BRAZILEIRO



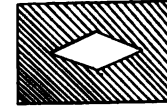
RED, WHITE, BLUE - WHITE STARS IN
RED - BLUE IN WHITE - RED IN BLUE
ATLANTIC TRANSPORT LINE



RED AND WHITE - BLACK "L.H."
LAMPORT & HOLT LINE



CRIMSON FIELD - YELLOW BEEHIVE
SUTTON & CO.



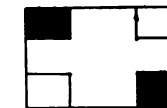
CRIMSON FIELD, WHITE
DIAMOND
AUGUSTINE HEARD & CO



WHITE FIELD - BLUE CROSS
GEORGE B. UPTON



BLUE, WHITE, RED AND WHITE BALL
D. & A. KINGSLAND



WHITE CROSS - BLUE MARKINGS
HOWLAND & ASPINWALL



CRIMSON FIELD - BLACK "X"
JOHN GRISWOLD



WHITE FIELD - RED BALL AND
LETTERS
FRENCH LINE



RED FIELD - YELLOW LION
CUNARD LINE



WHITE FIELD - RED ANCHOR
ANCHOR LINE



RED FIELD
LEYLAND LINE

As I said, the first twenty-four are old ones now out of existence. As the doctor puts it: "In those days New York was one of the most beautiful seaports of the world; the water-front was lined with majestic clippers, stately Indiamen and noble packet ships, their American ensigns and well-known house-flags of many brilliant colors floating in the breeze. The view and skyline of the port from the harbor were very beautiful; Battery Park with its fine lawns and trees in the foreground, the graceful spire of Trinity Church forming a prominent landmark, while clustered on every side were the modest yet dignified and substantial residences, gardens and warehouses of the merchants, with a quiet, refined atmosphere of prosperity and contentment, long since departed."

So much for the doctor.

Flags are ordinarily made of woolen fabric or bunting. The material comes from the Yorkshire mills in pieces of forty yards in length and four to thirty-six inches in width. Silk is used for special purposes. Flags are only printed when of small size and when a sufficient number will be required to justify the expense of cutting the blocks.

Flags are a branch of heraldry. They should be in accordance with its laws in forms and colors. It is also a requirement that color should not be placed upon color nor metal on metal. Hulme tells all this.

Let's get in the harbor for a second 'til I whisper a word on the arrangement of the colors.

An unfortunate combination is the yellow, blue and red of Venezuela; the yellow, red and green of Bolivia, and the white and yellow of Guatemala. These are violations of the rules of heraldic law. The Guatemala one is interesting. First it was red and blue together and white and yellow, but in 1858 they changed it, using the same colors with due regard to the heraldic law. It has a much more pleasing effect. These are not house-

flags, so let's get out of the harbor.

In flags, white is the symbol of amity and good will; yellow means illness; blood-red is mutiny; black is death. Black is seldom used, but when employed it is necessary to use it with white and yellow. During the civil war between the Royalists and Parliamentarians, they used an ermine flag with a motto decorating the field: "Malo mori quam fœdari." (It is better to die than to be sullied.) It is an allusion to the old belief that ermine would rather die than soil its fur. It is an emblem of purity and stainless honor.

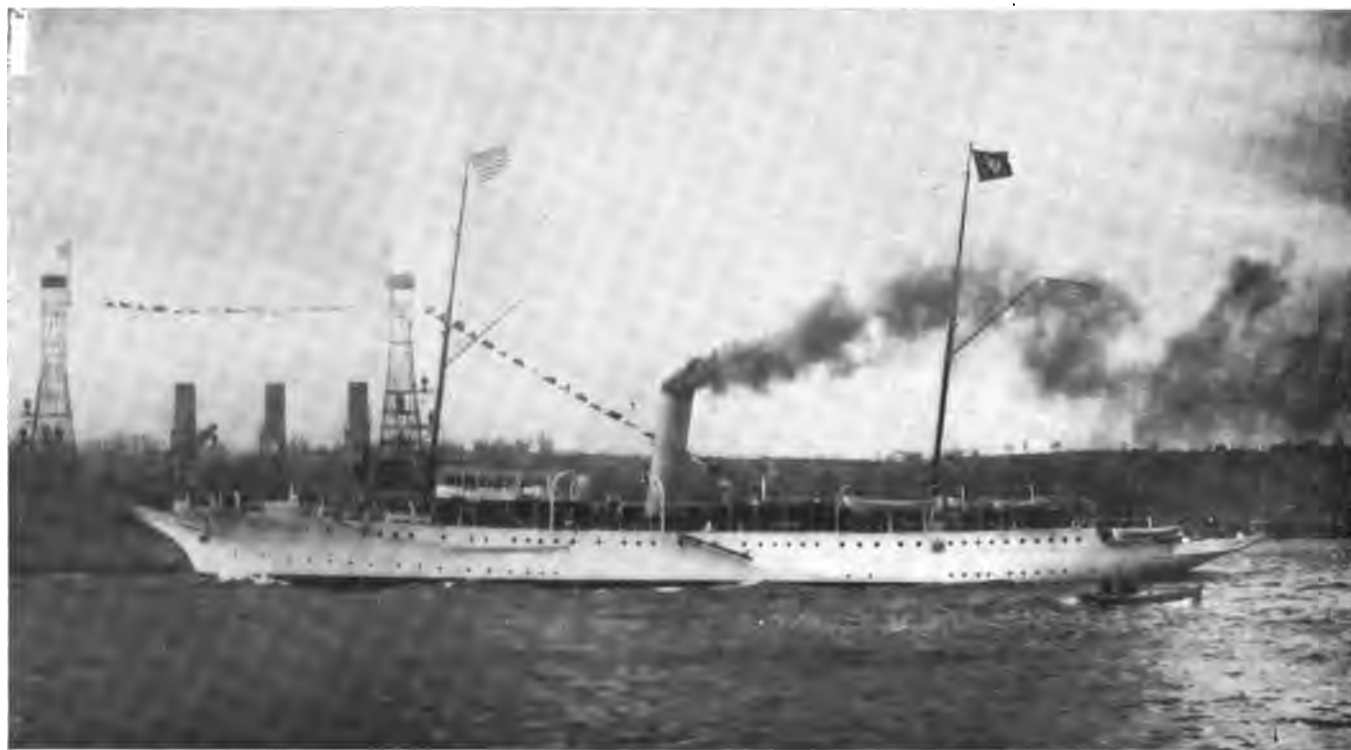
So many, in fact, most of the world, think flag-colors are a matter of individual taste.

The house-flags of various shipping companies make use of letters. The New Zealand Shipping Company, where the N. Z. S. Co. are conspicuous; the Orient Steam Navigation Company is white and divided into four portions by a blue cross with each square having in red letters, O. S. N. C.

Merchant vessels are permitted to adopt any house-flag or company flag on condition that it does not resemble any national flag. It must be clearly distinctive. Many house-flags are of strict heraldic propriety; many are not. Individual taste, I suppose. If I ever get the space (which I will not), I'll hand you an illustrated list of at least seven hundred and fifty house-flags. They won't only have stripes and crosses, but nice things like stars, crescents, anchors, thistles, bells, keys, crowns and tridents. They'll make you think like the farmer who went to a side-show with his wife and saw a camel. After looking at his puggy feet he remarked, with a straw wobbling in his superior maxillary,—“Mirandy, there ain't no such thing!”

In books on heraldry they use certain symbols for the various colors. I have used mine own.

I'll have to close the hatch on the ink bottle 'til I get further orders from headquarters.



The President's Yacht Mayflower, as She Appeared at the Naval Review on the Hudson Last Fall

INLAND WATERWAY OF THE ATLANTIC COAST

THE Coast and Geodetic Survey Division of the Department of Commerce and Labor has just issued a very interesting pamphlet, which we print herewith, giving full particulars of the inland waterway of the Atlantic coast. The migration of yachts, North in the Spring and South in the Fall, brings out each year more emphatically the necessity for improvement of the channels and aids to navigation in this class of marine travel. The following, being official and consequently up-to-date, should prove interesting to the many navigators who have occasion to use this route:

"The following has been prepared by the Coast and Geodetic Survey to supply information to those interested about the route and extent of the inland waterway along the Atlantic coast of the United States, the class of vessels that can use it, and the most necessary charts and other publications covering the entire route or any part of it. A catalog showing additional charts, principally of the harbors, along the route, can be obtained free of charge on application to the Coast and Geodetic Survey, Washington, D. C., or to any of its agents. A list of agents for the sale of charts and other publications of the Coast and Geodetic Survey is given in the catalog, and also in the first notice each month of the Notice to Mariners, published weekly by the Bureau of Lighthouses and the Coast and Geodetic Survey.

"Vessels of 7 feet draught can pass inside from New York Bay to Delaware River through the Delaware & Raritan Canal. Masted vessels are limited to a height of 50 feet above canal level by a bridge without draw at New Brunswick, N. J. The charts covering the route are as follows:

369. New York Bay and Harbor, price \$0.75.

375. Raritan River, price \$0.50.

126. Delaware River, price \$0.50.

"Vessels of 9 feet draught can pass inside from Delaware River to Beaufort, N. C., through the Chesapeake & Delaware Canal, Chesapeake Bay, Elizabeth River, Dismal Swamp Canal or Albemarle & Chesapeake Canal, Albemarle and Pamlico Sounds, Neuse River, Adams Creek, canal to Core Creek, and Newport River. A draught of 3 feet can be taken inside about 23 miles Southward from Beaufort, N. C., to Bogue Inlet. All bridges have draw openings. The charts covering the route are as follows:

79. Chesapeake Bay in one sheet, price \$0.50.

136, 135, 134, 133, 132, 131. Chesapeake Bay in six sheets, price of each \$0.50.

137. Norfolk to Albemarle Sound, price \$0.50.

407. Pasquotank River, price \$0.20.

140, 142, 143, 144. Albemarle and Pamlico Sounds and Neuse River, price of each \$0.50.

"There is no inside passage from Beaufort, N. C., to Winyah Bay, a distance of about 160 nautical miles, and vessels must pass outside between these points. Cape Fear River, halfway between them, is available as a harbor. The coast charts covering the route are as follows:

11. Cape Hatteras to Cape Romain, price \$0.50.

147, 148, 149, 150, 151, 152. Price of each \$0.50.

"Vessels of 5 feet draught can pass inside from Winyah Bay, S. C., to St. Johns River, Fla. All bridges have draw openings. The coast charts covering the route are as follows:

153, 154, 155, 156, 157, and part of 158. Price of each \$0.50.

"Vessels of 4 feet draught can pass inside from St. Johns River to Miami, Fla., through Pablo Creek, North, Matanzas, Halifax, and Hillsborough Rivers, Mosquito Lagoon, Indian River, South Jupiter Narrows, Hobe and Jupiter Sounds, Lake Worth, Key Biscayne Bay, and the canals connecting them. All bridges have draw openings. The channel is marked near its edges by beacons, each a pile with finger board pointing to channel, red with even numbers on the starboard hand going Southward, and black with odd numbers on the port hand. The coast charts covering the route are as follows:

158, 159, 160, 161, 162, 163, 164, 165. Price of each \$0.50.

"From Miami to Key West, Fla., there is practically an inside route through the Hawk Channel that can be used by vessels of 10 feet draught. Cuts with a depth of 5 feet have been made in places so that vessels of 4 feet draught can go from Miami through Key Biscayne Bay, Card Sound, Barnes Sound, railroad drawbridge at Cross Key, Blackwater Sound, Tarpon Basin, Florida Bay along the North side of the keys to Long Key, and thence Northwestward into the Gulf of Mexico at Cape Sable, or can continue in Florida Bay along the North side of the keys, through Big Spanish Key Channel, and thence in the Gulf of Mexico to Key West. The Florida East Coast Railroad has drawbridges at Indian Key (strong current except at slack water) and Moser Channel, which permit the passage of masted vessels between Florida Bay and the Strait of Florida. Small vessels without masts can pass under the Long Key Viaduct and the closed bridge at Bahia Honda. The coast charts covering the route are as follows:

166, 167, 168, 169. Price of each, \$0.50.

"A special edition is published of charts 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, on which the inland waterway is indicated by a broken red line, and these special charts will be furnished in place of the regular coast charts if desired.

"The route is covered in the following publications:

U. S. Coast Pilot, Part V, New York to Chesapeake Bay entrance, price \$0.50.

U. S. Coast Pilot, Part VI, Chesapeake Bay and Tributaries, price \$0.50.

U. S. Coast Pilot, Part VII, Chesapeake Bay to Key West, price \$0.50.

Tide Tables, Atlantic Coast ports of the United States, price \$0.15.

"The following publications of the Bureau of Light-

houses describe the aids to navigation, and can be obtained free of charge on application to the Division of Publications, Department of Commerce and Labor, Washington, D. C.

List of Lights and Fog Signals, Atlantic and Gulf Coasts of the United States.

List of Buoys and other Aids to Navigation for the following lighthouse districts:

Third District, Narragansett Bay to Cape May, in-

cluding Long Island Sound, New York Harbor, and Tributaries.

Fourth District, Delaware Bay and River.

Fifth District, Cape Henlopen to Cape Lookout, including Chesapeake Bay and North Carolina Sounds.

Sixth District, Coast and Tributaries from New River Inlet, N. C., to Jupiter Inlet, Fla.

Seventh District, Florida Reefs and Gulf Coast to Cedar Keys."



LIGHT FROM STORAGE BATTERIES

E. J. Ross, Jr.

ANYONE who has taken a cruise in a small boat, that is, cruisers of the hunting cabin type, ranging in length from 25 to 40 feet, can very readily appreciate the tremendous advantages and great comfort of having a few electric lights about the cabin. The oil lamp may be all right in its place, but I contend that its place is not in the cabin of a small boat, where good air and ventilation are so essential. This nuisance can and should be done away with.

It seems to be the general impression among owners of boats of this class that electric lights are a luxury and far beyond their means. But are they? Have you ever stopped to figure it out? Do you realize what the high efficiency tungsten lamp operated by the latest type of alkaline storage battery has placed within your reach? Let us consider it carefully.

The low voltage tungsten lamp now made to withstand severe jars and vibration consumes only one-third as much current per candlepower as the old style carbon filament lamps. The holophane type of reflector gives a very even and pleasing distribution of light. The alkaline storage battery is practically fool-proof; you can handle it the same as you would your gasoline tank. Just charge it and occasionally fill with water and forget it. The combination is ideal, and I believe solves this more or less perplexing problem once and for all.

About two years ago, being fully aware of the possibilities along this line, I secured a 6-volt, 150-ampere-hour Edison storage battery, and have now used it for lighting purposes for two consecutive seasons. This set occupies a comparatively small space, is not very heavy (only about 70 lb), and enables me to burn three 8-candlepower, 6-volt tungsten lamps for a period of 30 hours per charge of battery and supplies ignition for a two-cylinder Bridgeport engine as well. This, to be sure, does not afford an overabundance of light, but it does take the place of the kerosene lamps in a very satisfactory manner.

How to recharge without having a dynamo aboard is not a question, as might be supposed, which is liable to cause any great amount of trouble or inconvenience. This can be accomplished in a number of different ways. One system, which is thoroughly practical and is being strongly advocated, is the establishing of exchange stations in power-boat and yacht clubs, whereby a member can leave a discharged set and pick up a charged set the same as is now being done by the Auto Lighting Exchange Company with storage batteries, and the Presto Light Company with gas tanks for lighting automobiles.

To work this system properly each member should

own his own set and a few spare sets should be owned by the club. In dollars and cents the actual cost of recharging is surprisingly low; to this should be added sufficient to keep all the sets in first-class shape. This additional cost is also a small item, as each set is fully guaranteed for a number of years.

If electric current for recharging is not available at the club, a small gasoline engine belted to a low voltage dynamo can readily be set up in some convenient location about the clubhouse or premises, and will answer the purpose equally as well and will probably be considerably cheaper.

Let us take, for example, an outfit consisting of a 1-k.w. dynamo driven by a 2-h.p. gasoline engine; with a set of this description, three batteries each consisting of five cells, type A-4 Edison can be charged to full capacity in 7 hours at a cost of about 7 cents per charge per set. This is figuring the cost of gasoline at 11 cents per gallon.

Those not belonging to a club or not finding it convenient to call at the club, can usually arrange to have their battery recharged somewhere in the direct vicinity of their headquarters either from central station power mains, some nearby industrial plant, or possibly an individual gas engine set. Frequently, as in my case, an automobile garage can be found which will recharge your set for you at a nominal cost.



Edison Storage Battery

TROUBLES COME IN BUNCHES

A. L. Brennan, Jr.

LAST Summer while returning from a cruise on Lake Champlain a rather unusual thing happened. The engine, a two-stroke, two-cylinder machine developing 12-h.p., had not been thoroughly overhauled and in consequence it didn't run with the regularity of a chronometer. One day in particular it was exceptionally contrary.

Shortly after leaving Whitehall, N. Y., and entering the canal the engine was slowed down to a little below half its normal speed, and it at once began to act in a most outlandish manner. Somebody suggested adjusting the carbureter, and as soon as the needle valve was turned the engine calmly backfired through the carbureter and set fire to the oil and gasoline around the engine bed. We had a lively time for a few minutes, but succeeded in extinguishing the flames with only the loss of a whiskey glass which was knocked off a shelf in our excitement.

Pretty soon we were underway again and everything went well until the "suggestive one," taking a handful of waste, thought he'd wipe up a little. He started at the carbureter and the engine stopped a moment later—perhaps there weren't some things said. Oh—well, accidents will happen. Twenty minutes were lost getting some of the waste out of the check valve and then the chief received one bell and again we were underway.

Somebody suggested lunch and soon all hands had a bottle of that stuff that put Milwaukee on the map and a sandwich.

Suddenly the engine began to misfire and the thoughtful engineer, remembering that he had neglected to oil the timer which was now sticking due to the fact that it ran out of line, started to get busy. He took the cap off and while he was reaching for the oiler he dropped the cap and it disappeared under the engine bed. A little oil put a stop to the timer's lullaby and everybody asked where that hot smell was coming from. I instinctively looked over the rail and found the pump working O. K. The engineer, grabbing a screw-driver, lifted up one of the boards in the cockpit floor and exclaimed, "Gone to ———, as I expected;" and my eyes becoming accustomed to the dim light I could see the babbitt running out of the after bearing. The chief poured oil and water on it and we kept on.

After entering half-a-dozen locks the clutch commenced to slip and we were forced to tie up to the canal bank. The chief then got out his tools and started in to set up on the "dogs" in the clutch without first slacking back the set nut with the result that he broke it off. This necessitated a half-hour of very difficult drilling. He did not have a drill of the same size as the stud and so when the chief bored through there was about an eighth of an inch of metal left in the hole. He went below to get a drink and the "suggestive one," wanting to make himself useful, took a round file and tried to knock the remaining metal out and succeeded in breaking the file off in the hole flush with the outside. Perhaps the chief didn't say things. The file mishap caused us to lose half

a day while the clutch was taken apart and the broken file knocked out.

We tied up to the bank for the night a little later with a piece of wire rope in our propeller, and still we were not downhearted.

Enjoying a good sound sleep we turned out easily and after a hasty breakfast prepared to get underway, the wire rope having been disengaged, and we were soon "washing" the banks behind us to make up for lost time. The morning proved to be uneventful except when a spindle in the check valve broke and the engine ran so hot that it lost more of its paint. In the early afternoon we ran into a drizzly rain, but nobody cared much as long as the boat's progress was not hindered.

The engine was running with the regularity of a clock when all of a sudden it misfired and then commenced firing any old way, either ahead or astern, or both ways at once. The chief pulled the switch and made a hasty examination for the cause of the trouble and not finding it he finally gave up and said, "I hope to ——— it has fixed itself," and then started the machine, which apparently ran all right, so we shoved off again; no sooner had we done so when, "biff, biff, bang, biff, bang," and both cylinders commenced firing as if they were no relation to each other.

Once more we went up alongside the bank and began the closest kind of an investigation. The plugs, timer, coils, batteries, wiring, and switch were carefully looked over and nothing was apparently amiss. The chief turned the engine over while testing the plugs and since they fired in rotation he assumed that everything was O. K. and started again. It went nicely until it picked up to about 300 revolutions and then it was the same old story. So another examination was in order. I will never know whether it was luck or intuition that prompted the chief to wipe the oil off the timer. Finding the points a little dirty he decided to take it apart for a good cleaning. The timer was supported by a saucer-shaped support on the end of the timer shaft and this support was partly filled with water, and the chief theorized that the shaft rotating caused this water to lift from the cup and short-circuit the points. He replaced the timer, started up, and the engine ran well for a minute and commenced more antics. He then pulled the switch and deftly removed the timer, finding his supposition to be correct.

Water often plays an important part in the short-circuiting of the igniting systems on modern engines, but rarely is one confronted with such a perplexing circumstance as the foregoing, and it only once more emphasizes the necessity of keeping all the parts free from moisture.

When finally underway again everything worked splendidly and we expected to reach Albany without further mishap, but as always happens to those who are depending on running on scheduled time the unexpected occurred. When nearing the capital all hands dressed up preparatory to going ashore to take in the sights.

Reaching the yacht club we decided to anchor instead of tying up alongside the float. Giving the anchor a good bite on the bottom by reversing, all hands piled into the tender, which is equipped with a 2-h.p., two-stroke engine—also a clutch.

When within fifty feet of the float and running about six miles an hour, the chief slowed down, threw in the reverse and speeded up to about 1,000 r.p.m. The tender, instead of slowing down, gathered headway and ran full speed into the float before a soul could say Jack Robinson. The impact was so great and unexpected that all hands were thrown forward and slightly to starboard, due to the bow not hitting squarely, and the next instant everybody was floundering in the water between the float and the swamped tender, which was only kept afloat by a nearly empty gasoline tank.

We pulled ourselves out on the float and then attended to the tender, while a gathering crowd passed comments.

Many who read this article will realize at once the cause of our mishap—for those who do not I can easily explain. When the chief slowed down the engine in order to reverse without putting undue strain on the clutch, the engine missed fire due to the sudden change in speed and commenced running in the opposite direction as such machines will. Then when the chief threw in the reverse, the engine, running in the opposite direction, had the same effect as when the engine was going ahead with the clutch ahead.

Returning to the boat we hung up our clothes to dry and putting on what was left, we went ashore and enjoyed a thick steak.



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 1 Hudson St., N. Y., U. S. A.



CONCERNING SEA BIRD

[QUESTIONS about Sea Bird and answers thereto put down to the best of the writer's ability, but not guaranteed to be absolutely correct.]

Since my return I have received dozens of letters from men regarding Sea Bird, in which they ask many sensible, some foolish, and a few altogether unnecessary questions. Some of these people are going to build, others think they are, and a few are just asking them for practice or exercise or curiosity.

Is Sea Bird a new boat?

No; she was built ten years ago, and has traveled at the least calculation 20,000 miles.

Who designed Sea Bird?

The dimensions and general idea was the product of the brain of Thos. Fleming Day, the lines and plans were drawn by C. D. Mower, and the construction detail was worked by L. D. Huntington.

Why was she changed to a keel?

Because the trunk took up too much room in the cuddy.

Was Sea Bird faster as a centerboard?

Yes.

Would she be better with a larger rig?

No, and yes; depends altogether on the weather conditions in the locality in which she is to be used.

Are her spars heavy enough?

She has the same spars in her that she had when launched, and except for a breaking of the main gaff jaws they have never shown a strain.

Will she sail to windward?

Yes; she is a very weatherly boat so long as she can carry sail. I beat her 65 miles in 22 hours short and long

leg, in open water all the way. Her big sisters Naiad and Shamrock, are fine windward boats in a breeze. Sea Bird with her engine going will turn dead to windward at 3 knots or better.

Does Sea Bird steer well?

She is a perfect helming boat, and balances so she will steer for hours both on a wind and with lifted sheets.

What is her speed?

Under sail her maximum speed is 6 knots, under power loaded 3 knots. Under power in the open sea she made 65 sea miles in 24 hours, when she was loaded to 3 inches above her normal water-line.

Speed of her engine?

When loaded, I don't know; when light, 425.

What size wheel?

A 16x16 two-blade Columbia. This housed behind the deadwood when under sail. A wheel of larger diameter would be better, I think, but we had no time to try one, but will do so next Spring.

How much ballast?

If a keel boat, 800 lb outside, and 300 to 500 trimming weight inside, depending on the amount of stores and fuel carried. If centerboard, 1,200 lb inside.

Position of engine?

Under bridge deck, forward end. Would advise making bridge deck 8 to 10 inches wider, taking the extra space out of cockpit.

Cost of sails?

Suit of sails like Sea Bird carried costs about \$40.

Cost of Sea Bird?

A boat exactly like Bird, completely rigged and equipped with a 3-h.p. engine, tanks, etc., can be built for eleven hundred dollars (\$1,100).

Can she be capsized?

No; we have tried several times to upset her, but never succeeded in making her perform that trick. She might be pitch-poled in a heavy sea, but only through carelessness or want of skill.

Is she a dry boat?

No small boat is dry when she is driven. But, comparatively speaking, Bird is. She is the driest small boat I ever handled. She never dives or takes solid water over the bow, and is wettest with a beam or quartering sea, when heeled.

What speed will she make with a 6-h.p. engine?

I don't know. Nobody can tell what speed a boat will make with a certain power until they have tried her out. They can guess at it.

Can I enlarge Sea Bird to 30 feet?

Yes; simply extend all dimensions in proportion. Mr. C. D. Mower, of Bowes & Mower, naval architects, has the plans of a 30-foot Bird, and will be glad to sell you a set.

Sea Birds are building or to be built in England, Ireland, Japan, Canada, Belgium, California, New Jersey, and a dozen other places. A book containing the lines and plans and complete instructions for building can be had by sending one dollar to THE RUDDER PUBLISHING COMPANY, 1 Hudson Street, New York, U. S. A.



BRITISH LIGHTHOUSES

To the true sailor there is nothing more interesting than a light. He alone can appreciate what the tall tower either by night or day means, and many an hour of anxiety has been instantly relieved by a momentary glimpse of a well-known flash. I have been on the bridge of a vessel when making a dangerous coast. All hands are silently but nervously staring into the gloom ahead. Suddenly somebody cries out "There it is;" instantly the tension is relaxed and we move and talk. The helm order is given, the vessel rounds into the new, safe course, and where doubt and gloom roamed fore-and-aft, now dances security and cheer. Who through the long night trick has not watched the light flash one, two, three, or steered confidently for the steady gleam, and amused himself by speculating on what is going on in the distant tower; how the keeper lives and toils,



Hyskeir Lighthouse on the West Coast of Scotland.
The Light is of 597,000 Candlepower

marooned miles from the rest of mankind? Yet lonely as it is men get to love this life, and thankful to be out of the turmoil of the world.

Such a lonely post is that offered by the Dhu. Heartach, one of the most exposed of stations, built on a rock in the West of Scotland, and open to the buffets of the stormy Western Ocean. This tower is 126 feet high and shows a white fixed light visible 18 miles. Hyskeir Light is another West coast of Scotland beacon. It is 128 feet high, flashing white, visible 17 miles. Howth Baily is a finely situated light on the East coast of Ireland and helps guard the immense traffic of the Irish Sea.



Dhu. Heartach Lighthouse on West Coast of Scotland



Howth Baily Lighthouse on East Coast of Ireland



Racing Ship Ida. Built from Rudder How-To Book

FROM MACKAY, QUEENSLAND

JUST luff and let me get alongside while I tell you I think your trip across the Old Herring Pond in Sea Bird was simply whopping. It ought to give the wise men something to think about and take some of the fear out of the lads that are fond of boat-sailing.

I have always been fond of the sport myself. I enclose two photos of Skip Ida that I built from RUDDER plans. I increased length 2 feet for counter, which makes her a miniature Sea Bird, and I have had some great sailing in her. For racing purposes I got mainsail same size as Racing Sloops and she carries it very well. Of course, I have had spills, which only increases the fun.

My first season we annexed a cup, and the last season, with a good lead, had the misfortune to capsize. Being anxious, I was carrying too much canvas and in jibing round the mark did the trick.

Being a boat-lover I get great enjoyment out of RUDDER readings, and have tried to get subscribers; but it is like getting blood out of stones. No end of lending them THE RUDDER; will make them buy it themselves.

We have a regatta club with a good membership with small fees. A club shed will be clubhouse when we get some wealthy members who are boat-lovers. We reg-



Skip Racing with Seventeen on Board

ister ten sailing boats, and some of them are crack 18-footers from Sydney. Our river is against much sailing, being dry at low water, so that our events are run off when tide suits.

The principal industry here is sugar, of which we export about 40,000 tons each year, with a population of about six thousand.

I now conclude, wishing the Oldman and his ship continued prosperity, and with the compliments of the season from one of your crew.

W. J. CHAPMAN.

HOBART, TASMANIA

THIS finely situated city is the capital of the healthy and wealthy island of Tasmania, now a part of the great Australian Commonwealth. The island abounds with fine sailing waters, and a large number of yachts are owned by the inhabitants, the principal fleets harboring at Hobart and Launceston. The small sailing vessel in the foreground is a three-masted trading schooner, a smart type of packet, that carry on the commerce be-



View of Hobart, Tasmania

tween the island ports and the mainland. This magazine has had for years a considerable circulation in Tasmania and has done much to build up the sport out there.

HALYARDS JAMMING

HALYARDS jamming, the result of swelling of the cordage when wet, or through a bad lead, is a constant source of annoyance and danger. To prevent, always buy the best cordage and blocks in the market, and either have the rope smaller than the block, or have the blocks larger than the rope you intend to use. Designers and builders usually insist upon giving you a block with the swallow of the exact size to take the cordage. Always insist upon having it one size larger. Be careful in your leads that you do not bring the rope across the edge of the shell of the block, and that the rope leads from one block to another at such an angle as will bring it to play fair over the sheave. A twisted block is often the cause of a halyard jamming or running with heavy friction. Blocks should be oiled on fitting-out and again once or twice during the season.



Yachts in Shanghai, China

YACHTS AT SHANGHAI

SHANGHAI, CHINA, is one of the principal ports of the Flowery Kingdom, and consequently there is a considerable settlement there of foreign devils engaged in banking, shipping, and general trade. These foreign devils have brought with them, among other strange vices, a love for sailing on the sea for pleasure, something that does not appeal to the Oriental as a pastime. There is a yacht club at Shanghai with a goodly membership and many fine boats. The pictures show some of this fleet at anchor. Several of the club boats are of RUDDER design. The snapshots were sent by Mr. D. S. Davies, an old reader and one of the first in that port to own an auxiliary cruiser.



INFORMATION WANTED

A SMALL boat, called Vision and rigged as a hermaphrodite brig, sailed from New York in July, 1864, bound to Liverpool. Has any of my readers a record of her voyage or information as to whether she ever reached port? Also, I would like to get hold of the log of the dory Centennial, that crossed the Western Ocean in 1876.

EDITOR.



Snugly Moored

THE DESIGNING COMPETITION

YOUR contest for cruiser designs did not receive the interest from designers that it should, for I am sure that owners all over the country were more than interested in the plans you showed of the winners in the December issue. I know I was. So designers "overlooked a bet" — an opportunity to show to prospective owners. I considered the winners properly placed but thought I saw quite a few things to criticise in the designs and happened to casually mention this to an enthusiast, who immediately insisted that I get busy. I argued that it was too late for January issue and if at all criticism should have been made then. That it was presumptuous for Western man to criticise Eastern designer, etc., etc., but he came back with "we were all brothers in boat love," etc. Well, I fell for it and here goes, even if the "come-back" from the designers gives me a bad list to port.

PRIZE WINNER NO. 1

The extreme rake to stern gives a following sea a fine opportunity to lift her and bury her bow in spite of her fair flare, and with her deep forefoot she is not going to be an easy ship to steer in the same following sea: especially when the area of her rudder blade is not any too generous. Another point, no provision for an emergency tiller is shown, or for any forward white



A Yacht Landing



A Handy Type

YACHTING AT SHANGHAI, CHINA

light, though I suppose the designer expects to carry a light on the spar.

The keel seems a bit scant for offshore work, and while the side elevation of the complete boat shows a towing post, when you look on the sectional view this towing post would be mixed up with the steering quadrant, and would have to go farther forward between the fuel tanks.

At the best on a small boat a galley is not exactly a "Summer resort" spot, but this one is surely going to be some hot with no ventilation excepting a little overhang from the skylight, and the one drop window practically blocked off. The space between berths in the owner's stateroom is so small that we imagine we see the owner pulling out the drawers all right, but having a fine time getting them back in that limited space. The trouble will be that the owner of such a craft will never have had the hall bedroom experience of getting on the bed and pulling a trunk from underneath the bed and opening the same without leaving the bed. It can be done though it seems a bit difficult.

PRIZE WINNER No. 2

Any V-stern cruiser steers badly in a following sea. I have possessed a few cruisers and I speak from experience not theory, and the deep forefoot of this design will aggravate this fault, for steering badly in a following sea is a fault, an annoying one if nothing worse: if this design showed a little larger rudder blade it would help some. Winners No. 1, 2 and 4 may be criticised for one common fault; the location of fuel and fresh-water tanks. They are placed in extreme forepeak for the fresh-water tanks and under the quarter-deck for the fuel tanks. Inasmuch as these tanks when full weigh anywhere from 500 to 800 lb, it must put an immense strain on the backbone of the boat when balanced on a big wave, and it makes the ends dig in the seas and stay there, consequently laboring in a bad seaway, instead of rising and falling easily and riding them in the right way. Another thing, as the tanks become empty it affects the trim of the boat. I have never had a tank any place but alongside the engine, but I should be afraid of the fuel feed with a tank 15 feet away under the quarter-deck. With the craft rising forward on a long slow wave gravity would have no chance to force the feed. Of course this feature could be safeguarded by having a small auxiliary tank right at the engine, or by having air pressure on the tanks the same as the big motor cars carry. But adequate air pressure is hard to keep confined for even as protracted a period as four or five hours, and I have run eight hours in the Great Lakes when I was too busy at the wheel to go below and give an air pump a few plunges. Of course the air pump could be on the bulkhead alongside an air gauge right at your hand near the wheel, but give me gravity feed, which is always on the job.

In your editorial comment you speak of the judges criticising the location of the toilet room in Winner No. 3, but this same criticism applied equally to No. 2. It is in the engine room. Still it is not open to criticism on that point either if the women aboard expect to handle the galley, for they would have to go into the engine room anyway to get to the galley. I have never had a galley in an engine room in any boat and never will for the following reasons, and the fact that some of the finest cruisers up to even 60 feet have galleys so located does not change my views in the least. The odors of the burned cylinder oil permeate the food-

stuffs for one thing, and another, there is always the possibility of gas vapor around the engine base and the possibility of a lighted match being dropped and thus reaching the danger zone. I have never permitted lighted matches any place but in the galley or on the deck and my galleys have always been as far forward or as far aft as I could get with the engine room amidships or nearly so, and I never take anything but an electric light into the engine room. I will admit that I have never heard of an explosion due to galley being located in the engine room, but there is always the possibility. My third objection does not apply if a deck hand or engineer acts as cook, but is a big objection if the good wife of the owner is doing the cooking. For instance, you are out in open water all day and out on the deck in the brisk bracing breezes, but late in the afternoon you drop the hook in a landlocked harbor. The aforesaid breeze is no longer doing business and as the sun descends in the West—where it usually does descend—it still continues to do business and it gets about twice as hot as during the day, or by contrast it seems so. You have shut the good engine off and it commences to radiate the accumulated heat and the engine room gets about four times as hot. Into this improvised Turkish bath your good wife descends to try and prepare the evening meal. But why continue—those that have been there know, and those that have not may imagine.

No. 2 does not show any towing post either, but towing a friend into port may not be popular East. Also does not show any provision for forward white light.

PRIZE WINNER No. 3

Too much freeboard for one thing, not any sheer aft, and too much overhang, that is, too much over-all beam for her water-line beam and she is bound to be cranky. The location of her tanks is right as far as safety, etc., is concerned, but would give much more room if carried against the frames just under the deck beams. The extreme crown of the after deck is such that at a dock a stern line would refuse to work even a Skene chock. Maybe a towing post could find a home on that after deck and not get its foot mixed up with the steering quadrant or the little clothes closet below deck, but I doubt it. On a small cruiser a dinghy at the best is a bothersome proposition, but should be carried, or rather should not be carried off center. Of course with the designer's two skylights there was no other place. Dead deck lights would have given enough light to have done away with one skylight and by placing the spar a little farther aft there might have been room for an 8-foot dinghy, but at that it would have looked "bum" so far forward.

PRIZE WINNER No. 4

Does not seem to have much class to it, but at that it seems less subject to criticism. Briefly, rudder blade a bit scant in area. Deck cleat might hold a dinghy in tow but not a friend's cruiser in distress. Reiterate, tanks badly located. Steersman seems supposed to take the sun; maybe they like sun baths East. We get all the tan we want even under an awning. An awning for the steersman already high up would look out of place, to use a Western expression, "look rotten."

In conclusion wish to emphasize that these are purely personal opinions based on experience and observation on both sides of the water, and while I may chaff a bit we of the West realize that we had to get our first lessons from Eastern instructions and know there are still things to be learned.

Detroit, Mich.

J. WALTER SCOTT.

ACROSS THE ATLANTIC IN SEA BIRD

THE ENGINEER'S YARN

Theodore R. Goodwin



HOW I qualified as a gas-engine expert on the longest and most strenuous test that a gasoline engine has been called on to face, was and is yet one of the unsolved mysteries. Before I begin this yarn I want it plainly understood that I am a sailboat crank and have been all my life. To crouch at the helm of a racing knockabout with the sheets down to the last inch and the fleet under my lee splitting tacks in a vain endeavor to head me,

is the joy of my life, and while I have cruised from Cape May Point to Bar Harbor, and wrestled with the rips around Monomoy some nineteen times in varied experiences piloting racing craft back and forth around the Cape, I had never, previous to Sea Bird's voyage, been shipmates with a gas engine except for short day trips.

However, in justice to the Skipper's judgment in slating me for the berth, I will own up to the fact, that being in the boat-building business, I am more or less thrown up against the engine proposition in a practical way, and have had some success in getting along on friendly terms with the various engines which I had been thrown in company with, and when the Oldman asked me to ship as engineer and cook, I told him I could make shift to handle the job. Cook I have always been on every cruise—it is a stigma which clings; but engineer was a new berth.

The Skipper has told all about our fitting out for sea, so that I will not waste any words on that except to say that as my own men got the Bird ready for her junket, I was on the job every minute, and if there was anything wrong I wanted to know it before we got to sea. Unfortunately, there was the usual delay about getting together the various fittings and Sea Bird did not get off the shore until Monday afternoon of the week in which she was to sail on Saturday. I had never seen a Knox engine to recognize it before we put the little 3-h.p. into Bird, and neither myself nor any of our mechanics had ever run a gasoline engine on kerosene. However, as soon as the boat was afloat we primed the little kicker and snapped her over, and off she went just as contentedly as if it was her regular job, and I made up my mind instantly that we were going to be friends. In ten minutes she would eat out of my hand, throttle down, reverse on the switch, start without priming by rocking a couple of times, and do all the stunts that a well-bred two-stroke engine should. I ran her over

home that night and back the next morning and she got her trying-out by doing ferry service all during the week, perhaps ten miles altogether. Thursday we tried her on kerosene and after a little experimenting to get the right amount of heat to the mixture, had her turning over like a sewing machine on five-cent-a-gallon illuminating oil. There was a slight loss in power due partly to the lower power of the fuel, and partly to the loss of some compression when the hot-air pipe was opened up, but it was not over 25 r.p.m. and we were all satisfied that if she would run steadily for long periods it would be a great saving in the cost of running as well as a tremendous increase in safety.

Our magneto did not arrive until Friday, but we got it hooked up without delay and I ran her home that night with the "mag." firing the machine in great shape.

In our bilge we had a 35-gallon tank which was to be our main supply of kerosene. This had an ordinary bicycle pump attached to furnish pressure to force the oil up to a 3½-gallon tank in the cockpit, which had fine gravity feed. In the after end of the cockpit was a 5-gallon tank for gasoline to start on.

In addition we had gallon cans lashed all along one side of the house and a 5-gallon can lashed to each set of shrouds. We planned to stop at Vineyard to take on another compass and replace what fuel we used on the run down, but when we got there we secured some square 5-gallon cans and stowed five of them in the cockpit and two more in the rigging, so we really started across with considerably more fuel than we planned. We had 10 gallons of Polarine Oil, 10 lb of cup grease, 30 Edison dry cells, and a Campbell waterproof ignition battery containing 4 cells. We had a good serviceable kit of tools fastened to the bulkhead back of the engine and plenty of extra wires and two complete extra Perfex plugs. There were no spare parts for the engine, no extra vibrator, and what put us to the most annoyance of all was my stupidity in leaving my ammeter lying on the desk in the office.

If the ammeter had been aboard and we had had a spare vibrator and some extra carbon points for the timer, we would never have experienced a half-hour's delay except once when our feed pipes became clogged. These points were due to the fact that the engineer was green and strange to the engine, but it won't happen again.

We got away right on time as the Skipper has told you, and after running a couple of miles, took tow to Newport. The engine had shown a tendency to miss when running on the newly installed magneto and after we shut her down I discovered a loose wire to one of the terminals. Putting the pliers to the job I used more beef than brains and twisted the entire terminal, breaking the insulation and unknowingly putting the magneto

out of business for the entire trip, before we had really got started. This threw us onto the batteries entirely and made the lack of the ammeter a real hardship.

We cast off our tow at Newport at 5:25 p. m. and started up the engine, the wind being light and ahead, with a rather lumpy sea and light rain beginning to fall, and under those rather inauspicious circumstances, headed for the entrance to Vineyard Sound. There were frequent wind and rain-squalls during the night and we kept the engine running pretty constantly, shifting over to kerosene for about a half-hour just to see how she would run, but using gasoline for the balance of the trip. We made good progress driving her along under both power and sail, and at six o'clock the following morning we were tied up at the dock in Lake Anthony. Here we took on further supplies of fuel as I have already stated, and got underway at 9:30 a. m. with 108 gallons of fuel, of which 78 gallons was kerosene and the balance gasoline. It was a fine bright morning but windless and we drove her under the engine for ten straight hours, two of which were with kerosene as a fuel. The Skipper was worried at having so much gasoline and gave orders to use it up and reserve only enough to start the engine on, before making any serious inroads on the kerosene supply.

The wind was light S.E., nearly ahead, and while we carried sail, the engine was called upon to do the real work. It was very thick all night, but we plugged merrily along in the best of spirits, gambling on the chances of picking up Nantucket Lightship in the morning. After an hour and a half rest for the Knox we started it up again at ten o'clock that evening and it ran without a skip until six o'clock Monday morning. It was a great satisfaction to lie on the bunks in the cabin and listen to the steady hum of the little kicker, and I soon got so that it was the most soothing sound in the world; but just one skip or miss and I would be wide awake and worrying. Just before six that morning we picked up the Light-Vessel, although the fog was thicker than mud, and after a very brief conversation with the watch, turned our nose to the Eastward and severed our last tie with Yankeeland and home. I confess that I speculated as to what adventures we were to go through before we would see that wallowing hulk again, but I feel confident that there was not one thought of failure in the mind of any of the three. At six o'clock I changed fuel without stopping the engine as the gasoline was out of the cockpit tank and although we filled immediately from the deck cans, I let her run on the cheaper fluid until ten o'clock, when she gave a few tired coughs and quit. It was then that I discovered the greatest drawback to kerosene as a fuel. The reason for stoppage was the fact that in experimenting to see just how little heat was required to vaporize the oil, I cut her down too far and the oil refused to vaporize. I cranked her manfully but there was not even a kick and I learned my second lesson: that an engine with a base and carbureter full of cold kerosene will not start until she is free from it. We had a small leak in the shaft hole and this proved rather a fortunate thing, as it kept a certain amount of water in the bilge at all times. I opened up both the base cock and carbureter drains and let the oil run into her bottom, where it floated peacefully on the bilge water and was pumped overboard without difficulty. Turning the gasoline on once more I primed her and off she went as happy as you please. Just to show that I was master of the

problem I put her on to kerosene as soon as the carbureter was hot, and as the wind was light all day we kept her at her work until ten o'clock that night without further interruption.

During the night we entered the Gulf Stream and the curtain rose on the first of the series of almost continuous thunder-squalls that were to be with us most of the time for ten days to come. We used the power for several short spells between squalls, but as the next day was fine with a good breeze the engine got a rest until 6 p. m. That evening when the wind settled we started her up but after just three hours, at nine o'clock, she backfired and quit, and as it was dark and threatening and we did not need the power, I let her alone until the following morning.

Wednesday, June 14th, I went at the engine before breakfast and discovered that the carbureter was bone dry. By blowing back through the pipes—a fine job on an empty stomach—I soon got a huge mouthful of gasoline which stayed by me all day, and the engine started up at once at six o'clock and ran steadily on gasoline until nine, then on kerosene for just twelve hours through a fluky, windless day. If it had not been for the little Knox we would still be somewhere around Nantucket for all the help the sails had given us. After a brief rest the engine was again called on for duty and ran from 11 p. m. until four the next morning. We had a wicked squall that Thursday morning followed by calm, and engine from 6 a. m. until noon, when we got a breeze that kept us hustling along for two days while the engine took a well-earned rest.

Saturday afternoon the squalls varied their evening performances by handing us a hard one in broad daylight at three in the afternoon. As an experiment we started the engine and laid her head to it with the engine at about half-speed and when it had blown over, put her nose to the Southward to try and get away from the dog that was constantly biting us, and drove under engine and sails until six the following morning. That Sunday ended our first week at sea and found us about 800 miles on our way. We carried a breeze through the day but the wind fell with the sun and about 7:30 I called on the engine which, to my intense surprise, refused duty. There was gas in the carbureter and when turned over the vibrator gave out an apparently healthy sound, but run she would not. I was at that time standing watch from eight to twelve, and as we were absolutely without steerageway, lashed the helm and went below where the Skipper and Fred were peacefully reposing, and started to work. After two profitless hours I discovered that by holding down on the timer handle she would run. This did not seem an exactly orthodox proceeding, but it was dark and no time for making any detailed investigation, so I lashed the handle down to one of the gasoline pipes directly underneath and she ran through the rest of my watch and, in fact, until 3 a. m. While I was sleeping just after dawn she quit on the Skipper, and he routed out Fred, who succeeded in getting her going again and she did not quit again until ten o'clock that morning. I was determined to learn the explanation of the mystery and taking the timer to pieces, discovered that the carbon point which made the contact was badly worn and so short that the spring which forced it out did not carry it far enough to complete the circuit. It was the first time that I had seen the interior of the timer and it had been running without any kind of lubrication all the way, so there

was little wonder at the wear. Spreading the spring a trifle I replaced the carbon and everything was apparently O. K.

We called on the engine as never before that afternoon, being hit with the prize squall of all and thrown completely on our beam ends. Although the spark plug was soaked with water that poured through a hand-hole plate directly over the engine, and for at least thirty seconds the boat lay flat on her side with the carbureter horizontal, she did not miss an explosion and kept running in a most miraculous manner and gradually the propeller took hold and we fell off before the blast and righted. All night we ran before a series of nasty squalls with a heavy N.W. blow between times, and under jigger, jib and engine we fairly flew from crest to crest. I stood by the engine all night long expecting every minute that my makeshift repairs on the timer would let go, and the Skipper put in eleven cold wet hours at the helm; but the engine kept going and it was daylight next morning before the spring in the timer finally quit and she stopped, and we were well satisfied and let her rest.

It was destined to be quite a long rest, for that morning, Tuesday, June 20th, we picked up a beautiful fair wind which increased gradually all day and we fairly flew. The glass was falling steadily and the Skipper prophesied some real Western Ocean weather. All through my watch that night I drove her under close-reefed mainsail, jib and mizzen, with the wind constantly increasing and sea rising, and when the Skipper came on deck at midnight he at once decided that there was no sense in taking chances in the dark with spars or sails, and hove her to until daylight. It was a wild sight that met my gaze when I crawled out that Wednesday morning. The sun was shining but the scud drove across in heavy torn masses at railroad speed. The sea was wild and crested and Fred was dosing it plentifully with oil, while Bird struggled gallantly under a mizzen staysail, rising on the crests and falling into the deep hollows between. The wonder of it was that there was practically no solid water coming aboard, and it seemed a mystery how she picked her way over the great mountains which swept down on our starboard bow. There was not much cooking done that morning, and about eight o'clock the Skipper decided to try running for a while. We got the jib on her and let her fall off, and as we rose on the crest of a big sea she gathered headway and shot down the slope and we were off on a wild ride. All that morning we ran her before the steadily rising gale. Fred and I took half-hour tricks at the helm, as it was exhausting work both bodily and mentally. The other tended the oil tank and watched for particularly nasty seas, and when one of the kind we classed as bad put in its appearance, an extra squirt of oil took most of the wickedness from the crashing white crest, and Sea Bird ducked off either scot free or with a deckload of rushing water which ran harmlessly over the rail. It was a most exhilarating experience and we soon became accustomed to the tobogganing down the long slopes into the deep hollows, where for a few seconds we would be completely becalmed, then the gradually climbing, a pause at the crest, and then another wild downward rush with a mass of white water on every side. Fred kept his camera carefully wrapped in a piece of tarpaulin, and when a particularly big or handsome sea climbed up astern he would industriously snapshot until it had passed out from under us. Our eyes were sore with salt and our faces coated, while the water

dripped from our sodden hair and ran down our necks, and as it continued to freshen and we were both pretty well tired out with the constant strain, we held a consultation with the Skipper and decided to try out the sea-anchor. The Oldman himself took the helm when we had everything clear forward, and watching his chance he shot her around while Fred smothered the headsail and I dropped over our improvised drag and paid out some 50 fathoms of line. The change was marvelous. One minute plunging forward in that wild mass of tumbling water and the next laying quietly head to the sea, rising and falling with a delightfully easy motion, decks dry except for an occasional dash of spray.

Both burners of the stove were soon going and with the slide wide open for ventilation, we dried clothing, cooked, took pictures, and Fred amused himself potting with his Smith & Wesson an ugly-looking shark which had been our companion for several days. We slept like logs that night after a big supper, and as the next morning found the gale still raging, I made shift to repair the timer by inserting an extra spring made of ignition wire behind the regular brass coil spring. We also took down all the piping and blew out a quantity of a muddy substance and swabbed out the tanks as best we could with a piece of waste on a wire, and made uncomplimentary remarks at the stupidity of manufacturers who would not put in a fill hole large enough to allow the insertion of a hand for cleaning. That afternoon we took in the drag and ran before it until nearly dark as the wind seemed letting go considerably, and I took advantage of this opportunity to start the engine but shut down as soon as I found everything all right. We laid to the drag that night and the following morning found wind and sea both moderating and got underway. Ran the engine intermittently during the day when we would find a comparatively smooth spot, but with the sails it made her pretty wet, so we only used it about 12 miles altogether.

"Saturday, June 25th.—We are about 500 miles from Corvo and Flores, the Northernmost of the Azores and Sea Bird and the little Knox have done wonders." Thus ran my log of that date. From that noon until Tuesday noon we had a strong Southerly wind and made no attempt to use the engine. The wind was a trifle forward of the beam and while we were making a fine Easting we could not get down much to the Southward. The wind let go Tuesday noon and we started up the engine. All the gasoline that was left was in the cockpit tank, and we put her on kerosene and ran steadily all that afternoon and night. I was worried for fear the makeshift spring would go back on us and stood by the engine all night, the others splitting up my watch, but she kept going until 5 a. m. Wednesday, when she backfired and stopped after running 14 hours. Investigation showed that the oil came irregularly to the carbureter, although the pipes seemed clear. I started her up again after lunch as the wind had gone pretty near flat, and found by tickling the float valve when she began to slow down, she would pick up and run perfectly for a time, when the operation would have to be repeated. I stood by again all that night and kept the gas coming to the carbureter by that simple operation, and before the sun rose we made out the islands rising out of the sea dead ahead, and there was jubilation aboard. I was pretty well worn out with two nights of it and only a couple of hours of sleep snatched during the day, and about half-past five fell asleep in spite of myself, and the engine must have been watching me, for it passed away

soon after. After breakfast I started her without any difficulty and we ran out the last of our kerosene about abreast of the middle of Flores. There was some three gallons of gasolene left, so we got her out clear of the island with this and saved the balance to work into Fayal.

Friday we were under sail all day with a light headwind and we certainly missed the engine, but our fuel left was so insignificant that we could not afford to waste it. All that night we drifted with a piffing little air and realized how much the engine had helped us when we had its use. The next day was Saturday, July 1st, and our destination was in sight. When we finally turned into the Fayal Channel and the Skipper gave the word to give her the power, both tide and wind were dead ahead. The current ran so strong that we could barely make against it and the last two miles were heart-breakers. The carbureter trouble bothered us so that only by blowing into the fill hole of the tank were we able to keep going, and at last were obliged to give it up, finally anchoring in Fayal Harbor about 9:30 with nearly two gallons of gas still in the tank.

Sunday and Monday we loafed about on shore and enjoyed ourselves thoroughly. I took off the timer and magneto and disconnected the carbureter and discovered a small piece of waste wedged under the float valve, which had stopped our fuel supply and caused us so much trouble. A first-class Portuguese mechanic made some new carbon points and a new spring for the timer, but gave the magneto up as a bad job. I assembled the engine on Tuesday and she started at the first turn over and ran about the harbor like a watch. Just one extra piece of carbon would have saved me hours of work on the trip across.

Wednesday morning we took aboard 50 gallons of gasolene, as it was cheaper here than kerosene, and we headed Bird for Gibraltar. We ran the engine just 25 hours without a miss, and as a light breeze sprang up, gave it a short rest. At nightfall the wind dropped and the engine was again pressed into service. She began skipping almost at once, something we had not experienced before, and although we ran all night without actually stopping, was very irregular. At 8:30 a. m. she quit altogether. Fred was very sure that the trouble was in the vibrator, as he had seen all the batteries tested. I cleaned the platins with a bit of emery cloth and started up just before noon and she seemed to run better but still skipped a great deal. Shortly after midnight a good breeze came in and we stopped the engine and except for a short time on Tuesday, did not use the power again until Wednesday. That afternoon the wind fell and I called on the Knox. She ran all that night and, in fact, until 4 p. m. the following day, but skipped badly and stopped quite often although she would start off again without difficulty. I made up my mind to discover the trouble and went over the entire ignition system, even rewiring the whole circuit. The spark when tried on the outside of the engine seemed hot and brilliant but still she would not run without skipping. Fred and I had a quite heated argument over the question of weak batteries, as he had seen them all tested at the Azores; but I finally insisted on making a change and hooked on a complete new set. The timer happened to be in contact and when I threw on the switch the engine started herself, and that was the last of our troubles not only on the trip, but for the entire balance of the season. After that if she started to skip I hooked on new batteries and the trouble was over im-

mediately. The forgotten ammeter would have showed us the trouble instantly and obviated trouble No. 3.

That night it was like an entirely new machine, turning up more revolutions than at any time since we had left home, and running with a little happy buzz that was most satisfying. The next day, Friday, July 14th, we met a heavy Easterly gale and hove to all the forenoon but got underway with sails only, that afternoon. Saturday morning when the sun rose, Portugal was less than 20 miles ahead of us. We started the engine at 5 a. m. and ran until 8 p. m., running like a sewing machine every minute of the time. Sunday we only used the Knox two hours, as fuel was getting low and we wanted enough to get in if it came calm weather. Monday morning we ran a couple of hours with the Straits of Gibraltar in plain view and shut down until 5 p. m., when we started up to run into port, and this time she did not fail us but took us right in to the dock at Gibraltar. At five minutes before seven we were tied up and Sea Bird and the Knox had crossed the Atlantic and were in Mediterranean waters.

The Skipper has told of our shipping Bird to Naples on the Moltke. When they dropped her into the water at Naples I turned the engine over and off she started on what was left of the gasolene we had shipped in the Azores, and ran into dock, where we filled up our tanks. She made the trip to the mouth of the Tiber and up that swift-running stream, the engine running every mile of the one hundred and sixty. Starting back she bothered a few minutes until I got some new batteries hooked on and then ran sweetly all the way back to Naples. We shipped her home to New York via S. S. Koenig Albert, and when I wired up a new set of batteries at Staten Island she started without priming and ran practically every mile up Long Island Sound to the Rhode Island Y. C. at Pawtuxet.

Before I give the figures for the trip I want to take my hat off to the engine and the ignition system. There was no time when we really needed the engine when I did not get her going. Such troubles as we had were due to three causes: Plugged pipes, which no one could help, as we strained all our fuel; poor spark, owing to being obliged to depend on batteries and having no means of testing them; and lastly, our timer troubles, which could have been entirely avoided by carrying a spare contact. Carelessness, ignorance and dirt sums up the whole thing, and when you consider the terrific strain on the motive plant, the long periods of running and the fact that the engine was often dripping with salt water, it was a great triumph for the American gasolene engine.

It would leave something lacking indeed if I were not allowed to put in my little word of praise and admiration for the other two members of the crew. Thurber and I have been shipmates for many seasons and, as the Skipper has said, he is unquestionably one of the finest seamen afloat. No hardship or danger can ruffle his serenity and you have the comfortable sensation of knowing that no matter what happens you can always depend on Fred. He never grumbles about tackling any hard or disagreeable task and is always ready to lend a hand.

As for the Oldman, I cannot say enough in his praise. He is a kind and considerate commander, a wonderful small-boat navigator, and for a man of an older generation is marvelously active, and stands hardships as well as a couple of tough-nuts like the other two members of the crew. His sense of humor and

fund of anecdote served to furnish many a happy hour, and I hope that when this passes under his editorial eye, he will, in justice to his crew, withhold the blue pencil and let this go through just as it stands, a tribute to the grand old Skipper who has done such wonders for our greatest sport.

| FUEL CONSUMPTION | |
|----------------------------------|---------|
| | Gallons |
| On board at start..... | 108 |
| Used in stove and overboard..... | 8 |
| Engine fuel | 100 |

| ENGINE RUNS | |
|-----------------|-------|
| | Miles |
| June 10th | 45 |
| " 11th | 50 |
| " 12th | 60 |
| " 13th | 12 |
| " 14th | 80 |
| " 17th | 120 |
| " 18th | 20 |
| " 19th | 70 |
| " 23d | 12 |
| " 25th | 8 |
| " 26th | 45 |
| " 28th | 50 |

| | Miles |
|------------------------------|------------|
| June 29th | 35 |
| July 1st | 2 |
| Total | 609 |
| On board, leaving Fayal..... | 50 Gallons |

| ENGINE RUNS | |
|---|---------------------|
| | Miles |
| July 5th | 58 |
| " 6th | 45 |
| " 7th | 34 |
| " 10th | 4 |
| " 12th | 60 |
| " 13th | 43 |
| " 14th | 40 |
| " 15th | 50 |
| " 16th | 50 |
| " 17th | 12 |
| " 18th | 3 |
| " 20th | 1 |
| Total | 358 |
| Total mileage, Providence to Gibraltar... | 967 Miles |
| Total fuel consumption..... | 150 Gallons |
| Average consumption..... | .15 Gallon per Mile |
| Total cylinder oil used..... | .6 Gallons |
| Total cup grease used..... | .3 lb |



PRODUCER-GAS FREIGHT AND TOW-BOATS

FOR some years, the foremost marine engineers have talked of gas producers and gas engines as the coming source of power for marine work. They have pointed out their immense saving in expense for fuel and labor as compared with steam plants, also the big saving in weight and space.

There is an immense interest in this type of machinery all over the world. Some builders of marine gas producers are reported as receiving as many as 300 inquiries a day.

The practical, successful, hard-headed business men who are managing marine commercial enterprises are saying: "Yes, they are very economical, but are they reliable? Are they giving satisfaction? Are those who have purchased such plants satisfied with the results? Are they showing their satisfaction, after due use of one plant, by buying and putting a second and third plant to work?" The following is an attempt to answer these and other questions in this line:

One expression often heard is: "I suppose all gas producers are about alike." This is most decidedly not so. Different makes of gas producers are as different as black is from white, in design, operation and reliability.

A year ago, a new freight boat, Zeemeeuw III, was put into service between Dunkirk, Ghent, Antwerp and Brussels, Belgium, and from the time of her launching has given perfect satisfaction.

The boat is 115 feet long, 16 feet 5 inches breadth of beam, and can carry about 200 tons of cargo (hay, grain and brick) on a draught of 6 feet 3 inches.



Zeemeeuw III, 115-Foot Producer-Gas Freight Boat



Wolverine IV, 50-Foot Producer-Gas Towboat

The power equipment consists of a 36-h.p. Wolverine engine operating on fuel furnished by a Galusha marine gas producer. The engine develops its rated horsepower at 350 r.p.m., but turns 415 and consequently gives more power than it is expected to deliver. Laden with about 150 tons dead weight cargo, in still water, the boat makes $7\frac{1}{2}$ miles per hour. The coal consumption is from 418 to 440 lb per day, of 12 hours running and 12 hours standing with banked fire. This pea size coal ($\frac{3}{8}$ to $\frac{1}{2}$ -inch) costs the owner from \$4 to \$4.40 per long ton (2,200 lb), which makes an average consumption per day of 84 cents, as against \$5 for cheap low grade oil used by same sized engine in sister boat. Gasolene would have cost from 20 to 40 cents per gallon, or from \$10 to \$20 per day.

The owner, very much pleased with the reliability of outfit, its very wide range of speed, and ease of handling at all speeds and loads, watched it several months in regular service and then went to considerable expense to change over a sister boat, Zeemeeuw II, which had previously been running on a low cheap grade of oil, and installed a 40-h.p. gas producer in this boat also.

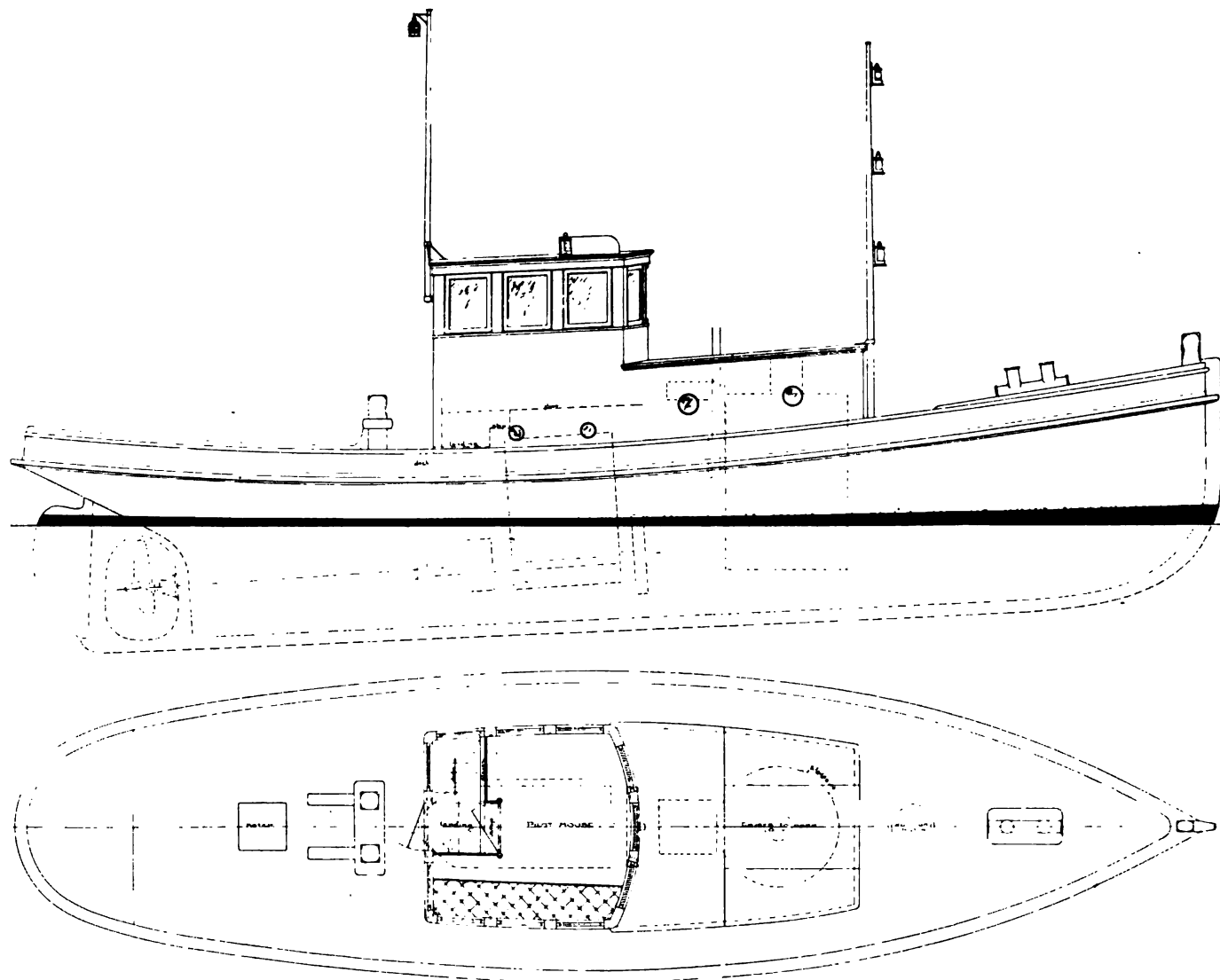
Messrs. Widenhorn & Korn, of Ghent, Belgium, have a whole fleet of towboats, all of which are propelled

by American-built internal-combustion machinery. They find this apparatus a very profitable investment, and far ahead of steam for towing and for producing profits.

Their towboat, Wolverine IV, was built in the Winter of 1909-1910. She is 50 feet long, 11 feet 3 inches wide, 5 feet 3 inches draught and is very strongly constructed of $\frac{1}{4}$ -inch steel plates. Equipped with 75-h.p. Wolverine engine and Galusha gas producer, she has been busy ever since. Her owners have since bought and installed two more marine gas producers and are very enthusiastic over this source of power.

The owners write of this boat as follows: "The boat is used exclusively for towing heavy barges on our canals and on the river Scheldt, and we find that we can most successfully and satisfactorily handle four barges carrying each about 300 tons of cargo at an average speed of 6 kilometers (about 4 miles) per hour, which is the speed allowed on most of our canals.

"The engine works very nicely on producer gas, with the utmost regularity and a minimum attention to engine or producer. We use this tug mostly for long distance towing when the engine has work for three or four days in succession during 10 to 12 hours a day, using full power practically all the time.



Proposed Fifty-Foot Producer-Gas Towboat. Designed by Mr. B. B. Crowninshield. Showing Arrangement of 100-H.P. Galusha Producer Plant

"The consumption of small sized anthracite coal (about $\frac{3}{8}$ to $\frac{1}{2}$ -inch) on such occasions, including the stand over consumption over night, varies from 300 to 320 kilos (660 to 704 lb) per 24 hours. The coal costs us about Frs. 22 (\$4.20) per ton of 1,000 kilos (2,200 lb). So you can easily see what an economy this means over either steam or kerosene, the actual cost per horsepower hour being in fact less than one centime ($\frac{1}{5}$ cent).

"The maneuvering qualities of the engine on producer-gas are extraordinary. We can run the engine dead-slow and any intermediate speed up to about 300 r.p.m. at will, without the slightest tendency to stop, or without disengaging the clutch. The boat moves with the greatest ease around the bar and locks. We check the engine by timing the ignition, but this can most successfully also be done by varying the quantity of gas admitted to the cylinders, and we have never had any trouble with regard to the gas."

The accompanying sketch shows a proposed 100-h.p. producer-gas operated towboat, and the comparison between the estimated cost of operating this craft on steam and producer gas is very interesting:

First cost and cost of operation of 100-h.p. producer gas tug and 75 and 100-h.p. steam tugs. The steam tug data concerns tugs working in Boston Harbor.



Galusha Producer-Gas Plant

| | Steam, 75 H.P. | Producer Gas, 100 H.P. |
|----------------------|----------------|------------------------|
| Size hull | 65x16.6x7 | 50x13x5.4 |
| Cost of hull..... | \$4,500 | \$3,000 |
| Weight of machinery | | |
| per horsepower... lb | 450 | 220 |
| Total cost | \$10,000 | \$9,000 |

First cost per horsepower, gas \$90, instead of \$133.33 for steam; saving $32\frac{1}{2}\%$.

| | Single Cylinder Non-Condensing High Pressure 100 H.P. Steam | Pro- ducer Gas 100 H.P. |
|--|--|----------------------------------|
| Fuel used per horsepower hour.. | .5 to 8 lb | 1 lb |
| Fuel used per year, of 300 ten-hour days, @ \$4 per ton (2,000 lb)... | \$3,000 | \$600 |

Year's saving in fuel expense, \$2,400.

Banked fire fuel consumption of gas producer is from one-seventh to one-ninth that of steam boiler of same horsepower.

Crew required for 75-h.p. steam tug; and 100-h.p. producer gas tug which will be under 15-ton limit:

| Wages per Year | Steam Tug | Gas Tug |
|-----------------------------------|-----------|------------------|
| Captain | \$1,200 | operator \$1,200 |
| Engineer | 960 | 000 |
| Fireman | 480 | 000 |
| Deck hand and cook combined | 600 | 600 |
| Total | \$3,240 | \$1,800 |

Saving in labor expense, \$1,440. A crew of two has been demonstrated to be sufficient for a gas boat. If owners feed crew at a cost of \$12.50 per month per man, saving in food bill per year will be \$300.

Saving in operating expense in favor of producer gas in 300 ten-hour days:

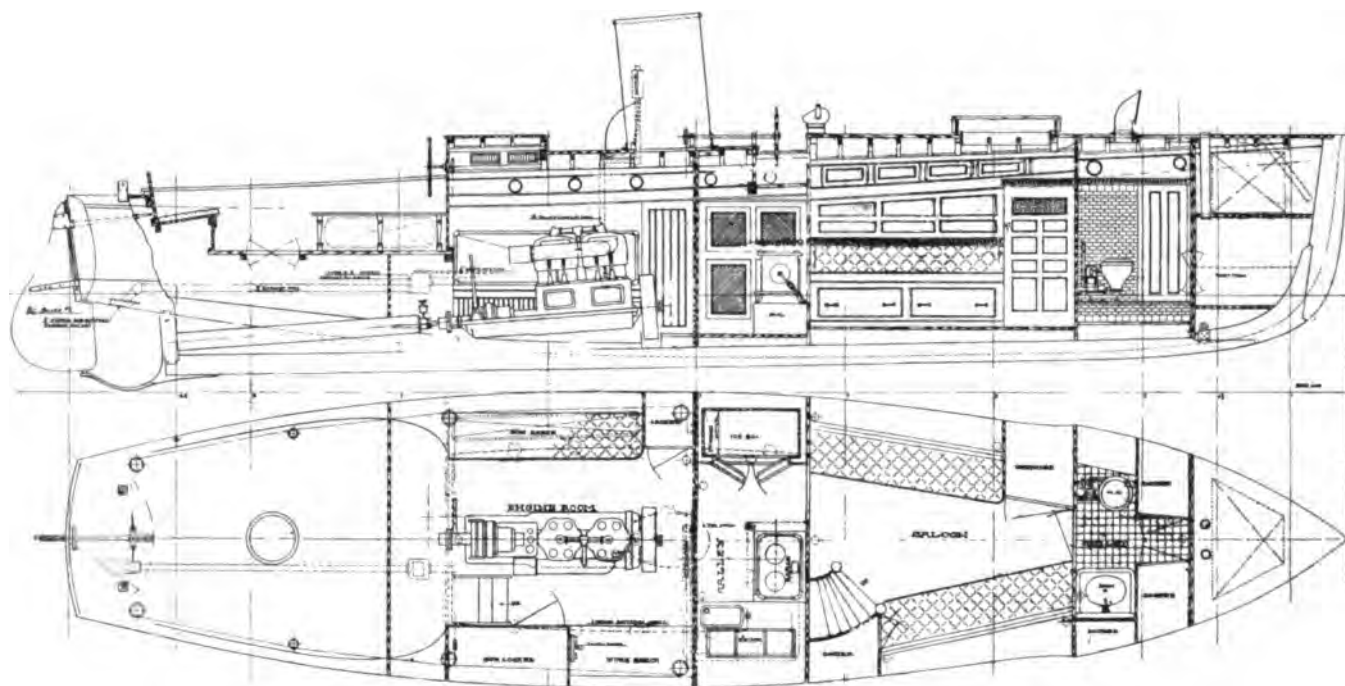
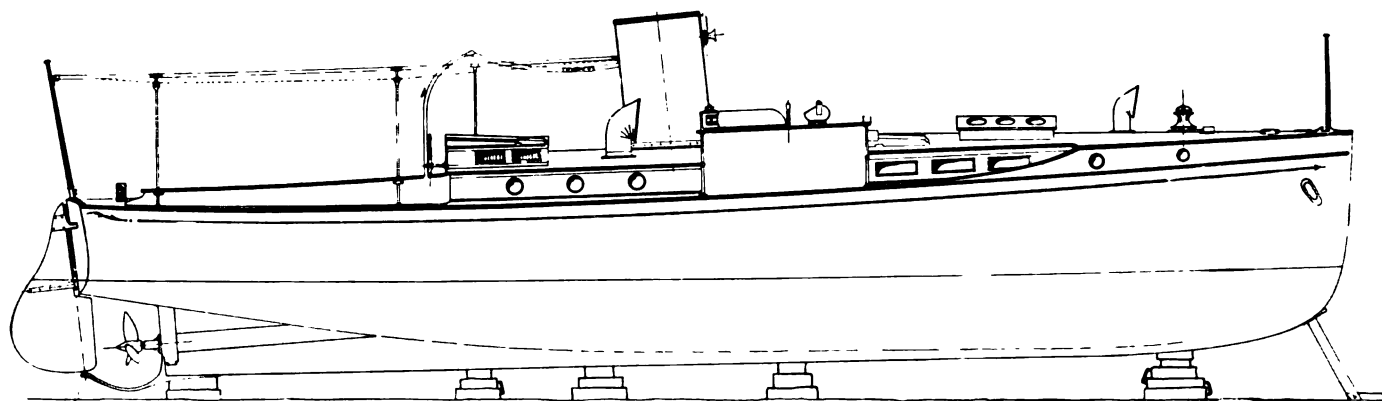
| | |
|-------------|---------|
| Fuel | \$2,400 |
| Labor | 1,440 |
| Food | 300 |
| Total | \$4,140 |

"This on the smaller investment of \$9,000, instead of \$10,000, is 46% profit in addition to what profit the steam tug would make. If boat was kept busy 20 hours a day, instead of 10 hours, and had two crews, the profits should be about doubled.

"As the producer-gas towboat has less draught, breadth, length and height, she can go where her steam competitor cannot go. The total absence of smoke and cinders and consequent cleanness and neatness makes this type of boat much to be preferred, especially about passenger craft and yachts, or where there are food products or goods not supposed to be mixed with cinders and foul smoke gases.

"The absolutely clear and odorless exhaust is in great contrast to the exhaust of more noisy gasoline boats. There is no storage of gas; it is used as fast as made. The climax of safety is reached, as there are neither gasoline or steam pipes nor receptacles to leak and explode.

"Engine, etc., can be entirely controlled from pilot-house. Operator does it himself. There is no chance for mistaken signals or delay. All grades of speed can be had. All operations are much quicker done than is the case with steam, especially with the single cylinder steam engine. The gas boat can go, for instance, from full speed ahead, to full speed astern, in a surprisingly small fraction of the time it takes to do the same operation with steam."



Forty-Three-Foot Day Cruiser. Designed by Mr. J. Murray Watts, of Philadelphia, Pa.

FAST DAY CRUISER

AN order has been placed by Mr. F. A. Meyers of Somerville, N. J., with Mr. J. Murray Watts, of Philadelphia, for a 43-foot high speed day cruiser in which he is installing a 40-h.p. 6½ by 8-inch four-cylinder Sterling engine. This boat is an improvement on the 43-footer Shark, designed by this firm last year for Mr. Sam'l. H. Collom, of Philadelphia.

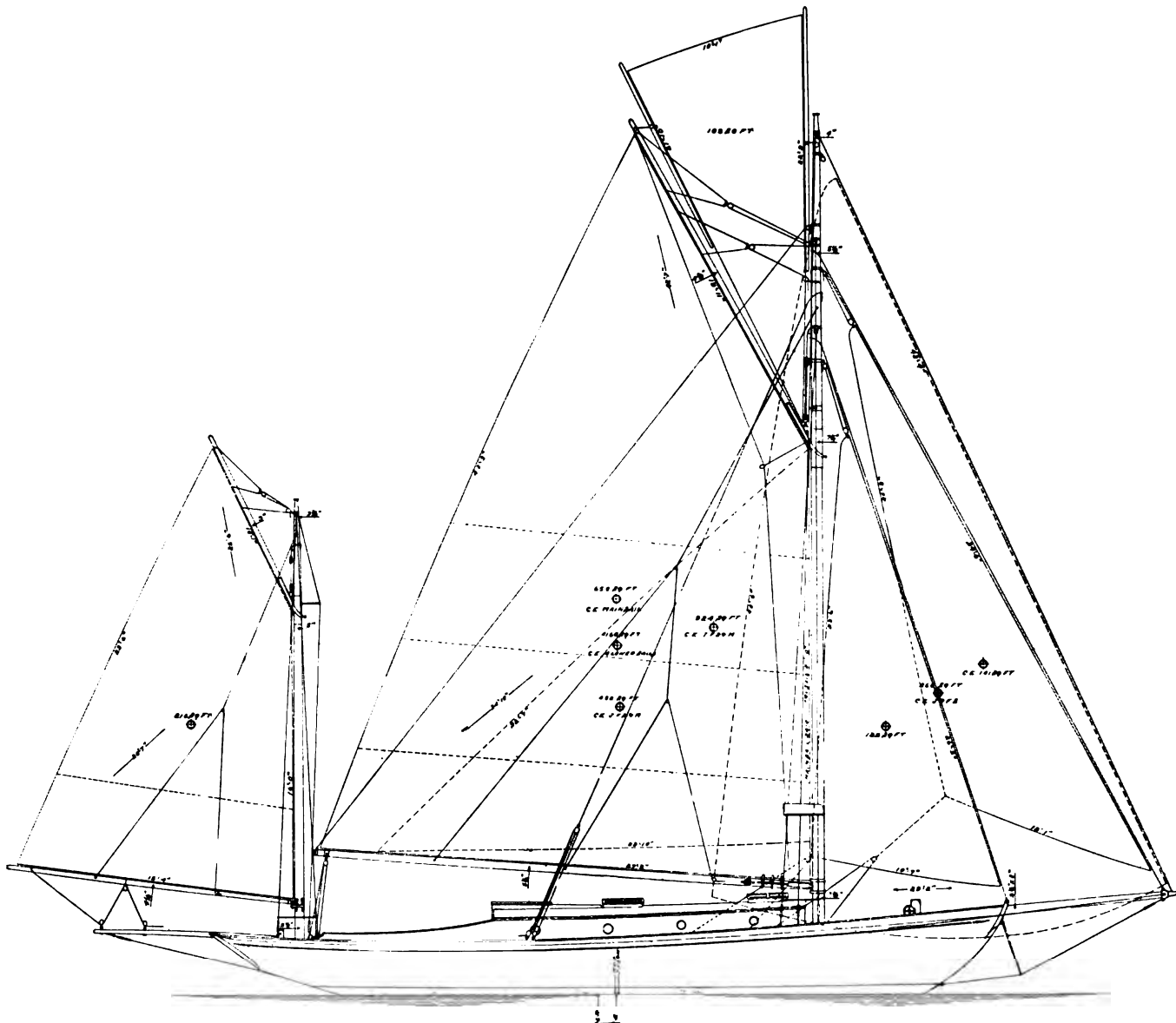
She is designed to be a boat that the owner can use for day trips and fishing parties. For this purpose, she is laid out with a large cockpit and wide decks on either side of the narrow trunk house over the engine. The raised deck forward gives her sufficient freeboard so that she can give a good account of herself in a seaway. The boat can be steered and controlled from both the bridge forward and the after cockpit. The rudder is so planned that by taking out a bolt, the entire rudder can be unloosened and hoisted on deck for inspection or repair.

The arrangement below decks is very simple. A companionway at the after end of the engine trunk leads to the engine room. There is ample room in this compartment to thoroughly inspect and overhaul the engine. The work bench is located on the starboard side

and a pipe berth on the port side for the engineer. This compartment is cut off from the rest of the accommodations by a heavy double bulkhead made sound proof by means of a lining of extra heavy felt.

There is no stateroom on this boat, but there is a roomy saloon with extension sofas on either side. The galley opens directly into the saloon and is equipped with a very large ice-box, a sink with running water, a Shipmate coal stove and a one-burner alcohol stove for hot weather. The ice-box contains a coil of block tin pipes leading from a separate enameled drinking water tank to a faucet. By this means, a perfectly pure ice cold drinking water is had at all times and the main water tank forward can be used for cooking and washing. The main water tank is set high enough so that the water runs by gravity to the sink and basin. It does away with small pumps in the plumbing. The piping to the gasoline tanks had been carefully studied out and the tanks themselves are located in the open on a self-draining cockpit floor. There is a light seat fitted over each tank, which is removable and the tank can be got at and inspected at a moment's notice.

In the outboard of this boat, the question of appearances has been carefully considered and she balances up



Auxiliary Yawl. Designed by Mr. Wm. H. Hand, Jr., of New Bedford, Mass.

very well. The short stack is used to hold the muffler, the smoke pipe from the galley, the whistle tank, and to ventilate the boat when battened down.

While this boat is built in a very heavy and substantial manner, nevertheless, owing to the cleanness of her lines, she is expected to make 16 miles an hour.

The general dimensions are:

| | | | | |
|-------------------|----|------|---|--------|
| Length o. a. | 43 | feet | 0 | inches |
| Breadth | 10 | " | 0 | " |
| Draught | 3 | " | 3 | " |

FORTY-EIGHT-FOOT AUX. YAWL

THE accompanying cuts show the sail and general arrangement plans of a seagoing cruiser to be built for Dr. E. P. Hussey, of Buffalo, N. Y., from plans by William H. Hand, Jr., of New Bedford, Mass. The boat is of very pleasing wholesome lines with a well-proportioned snug yawl-rig. The construction is heavy and all details were arranged to produce extreme strength and stability. In fact, the yawl was designed to last "a

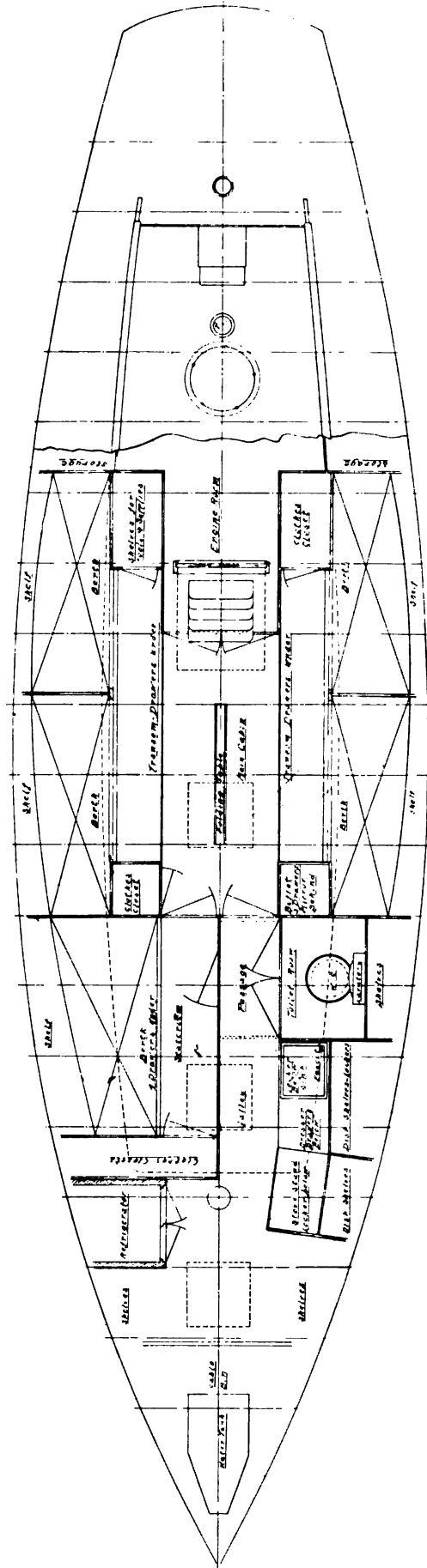
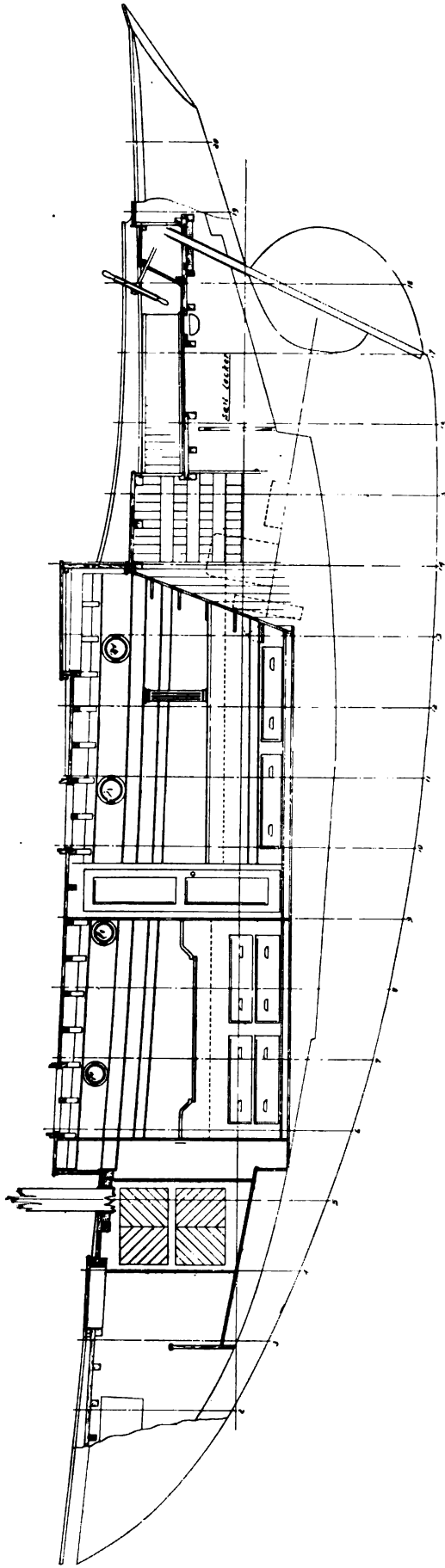
lifetime" even though used for long cruises on open water.

The plans show a well-arranged and roomy interior planned to suit the special requirements of the owner, who plans to carry no "paid crew." Sleeping accommodations for five have been provided with ample locker room. The engine is to be a 12-15-h.p. Sterling installed under a bridge deck aft of the main cabin. The engine compartment is accessible through hinged slanting doors which also form the cabin steps in a rather ingenious manner.

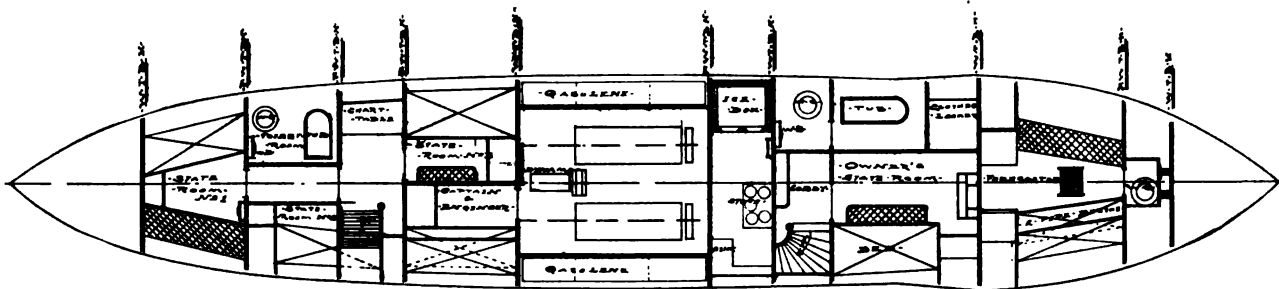
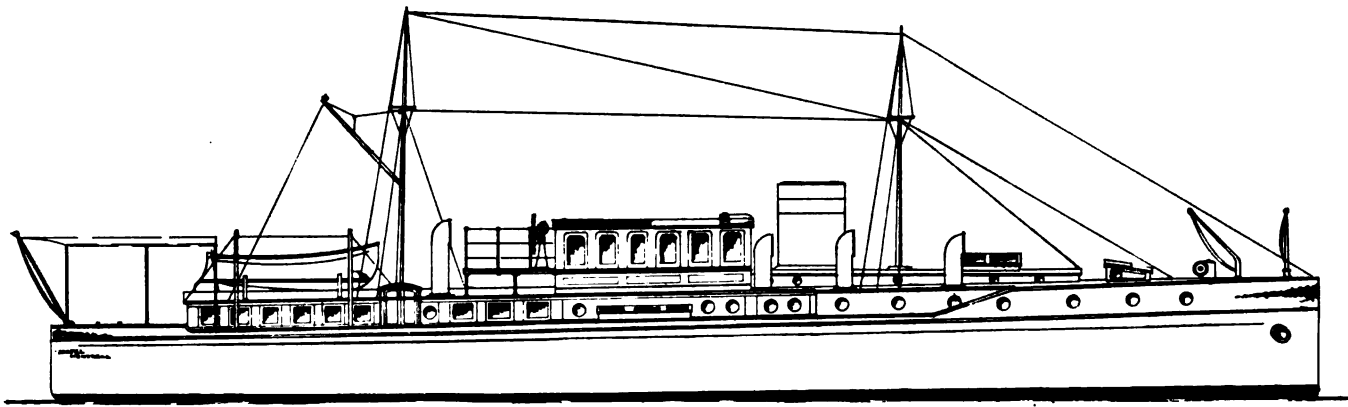
All details of the boat are to be especially complete and the general finish is to be of the best. Sails, spars and rigging are to be very strong; in fact, strength and seaworthiness were considered first and foremost in planning the boat.

The dimensions are:

| | | | | |
|----------------------|----|------|----|--------|
| Length o. a. | 48 | feet | 7 | inches |
| Length l. w. l. | 32 | " | 0 | " |
| Breadth | 11 | " | 10 | " |
| Draught | 5 | " | 6 | " |



Accommodation Plan of Forty-Eight-Foot Auxiliary Yawl



Eighty-Foot Power Cruiser. Designed by Mr. Ernest Rolland, of Montreal, Ontario

EIGHTY-FOOT CRUISER

THE sketch of the 80-footer shown above is from the board of Mr. Ernest Rolland, of Montreal, Ontario, and as will be noticed is of a type somewhat dissimilar to the normal. Mr. Rolland writes:

"There are several features in the design which are, structurally and æsthetically, decidedly novel and a great relief from what is generally produced in this line.

"For instance her entire frame, keel, stem and stern posts are of steel which permit an appreciable increase of internal space and assuring far more rigidity to the structure than would a wooden frame. The hogging and sagging inseparable from all bodies floating on troubled water, has often caused the heating of a bearing, when the longitudinal and other stiffness was not secured in wooden hulls. This is a point which must not be neglected in an ocean-going boat.

"The twin-screw arrangement becomes in this case advisable from the point of view of economy. Most people, while they are very glad to have a boat, do not care to forsake a lump sum for the mere cause of idealism, particularly where this is not absolutely necessary. A twin-screw arrangement in this case affords quite an economy of internal, and longitudinal space in particular, and reduces the over-all length materially.

"The sides of the trunk being continuous extend to the bows forward and combined with a bilge keelson afford perfect longitudinal stiffness. This being along the same lines as followed in the latest military practice.

"I am of opinion that there is far more to be gained by the study of the battleship design as applied to yachts than that of cargo or passenger steamers. As to the matter of form I believe that a battleship is much more of the form of the ideal yacht than the steamer, the breadth is proportionally greater, the maneuvering qualities meet the requirements of the yacht almost to perfec-

tion, the speeds attained are almost in direct proportion to those required of a yacht and the structural features need not vary in their elements.

"In the design above referred to this has been the idea which to a great degree was its base.

"The helmsman's position is ideal, he is protected from bad weather and being near the middle of the boat receives the minimum of motion. At the same time he is high enough to be at an advantage in navigating shallow waters.

"To prevent the structure from transverse deformation the number of transverse bulkheads has been brought to an extreme. Five are perfectly tight, their staunchness not being prejudiced by openings of any kind, while five more will have watertight doors of the horizontal sliding type working as well from the deck as from below. These features make the boat practically unsinkable.

"The masts will extend through the deck to the keel. Squaresails will be carried.

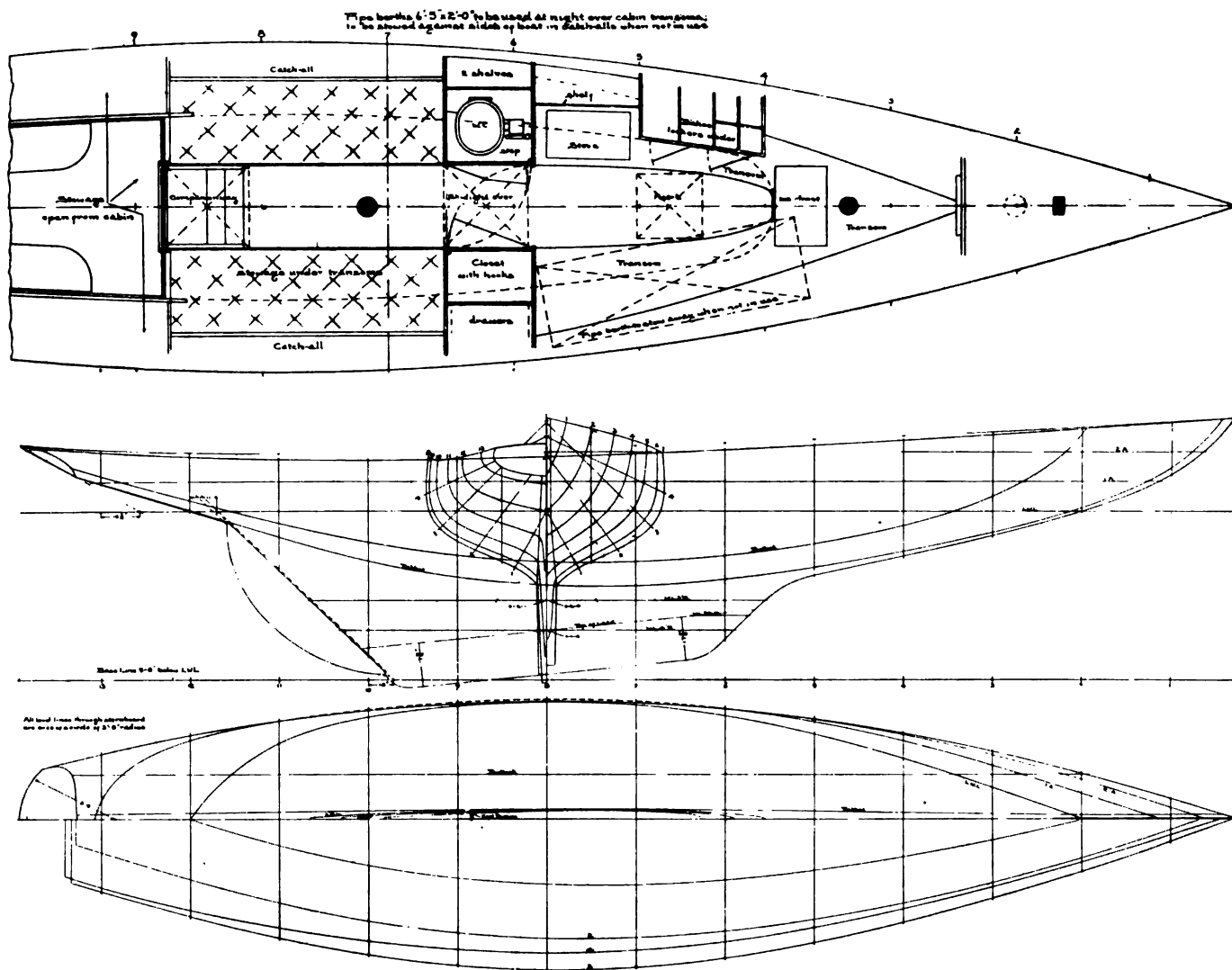
"The owner's quarters being away from the shafting, propellers and machine room will be remarkable by the absence of noise and vibration enjoyed therein, and being near the center of the boat, the minimum amount of motion will be experienced.

"The finest feature of this layout is the complete isolation of the owner's quarters from the crew, as well as the guests, this feature being highly desirable in a boat of this size.

"The guests' quarters are more ample than is found in the average boat of this size.

"The system of ventilation would be hard to improve upon. For, besides numerous cowls, fan blowers driven by electricity deliver fresh (hot or cold) air to the different compartments.

"Two four-cylinder 36-h.p. Buffalo engines of 9-inch



Accommodation Plan and Lines of One-Design Schooner

bore by 9-inch stroke should propel her at a speed of 13 miles. A 10-h.p. Buffalo will supply electricity from a dynamo, besides driving a bilge pump. This bilge pump will have separate feeds to each different watertight compartment, and will have besides an out-board intake to be used in case of fire and for washing down the decks.

"The capstan will be electrically driven as will also the steering gear, a small dynamo also serving to start the engines. By means of this electric system a great reduction in the number of the crew and the amount of work is obtained.

"This boat is to be built in this country (Canada) in one of the smaller towns where labor is considerably cheaper than almost anywhere on this continent."

ONE-DESIGN SCHOONER

THE popularity of one-design classes on Long Island Sound has brought out some interesting boats, but the little schooner, shown in the accompanying plans, should prove one of the most interesting experiments of the coming season.

The designer states that no attempt was made to obtain an excessively light hull, and the boat undoubtedly

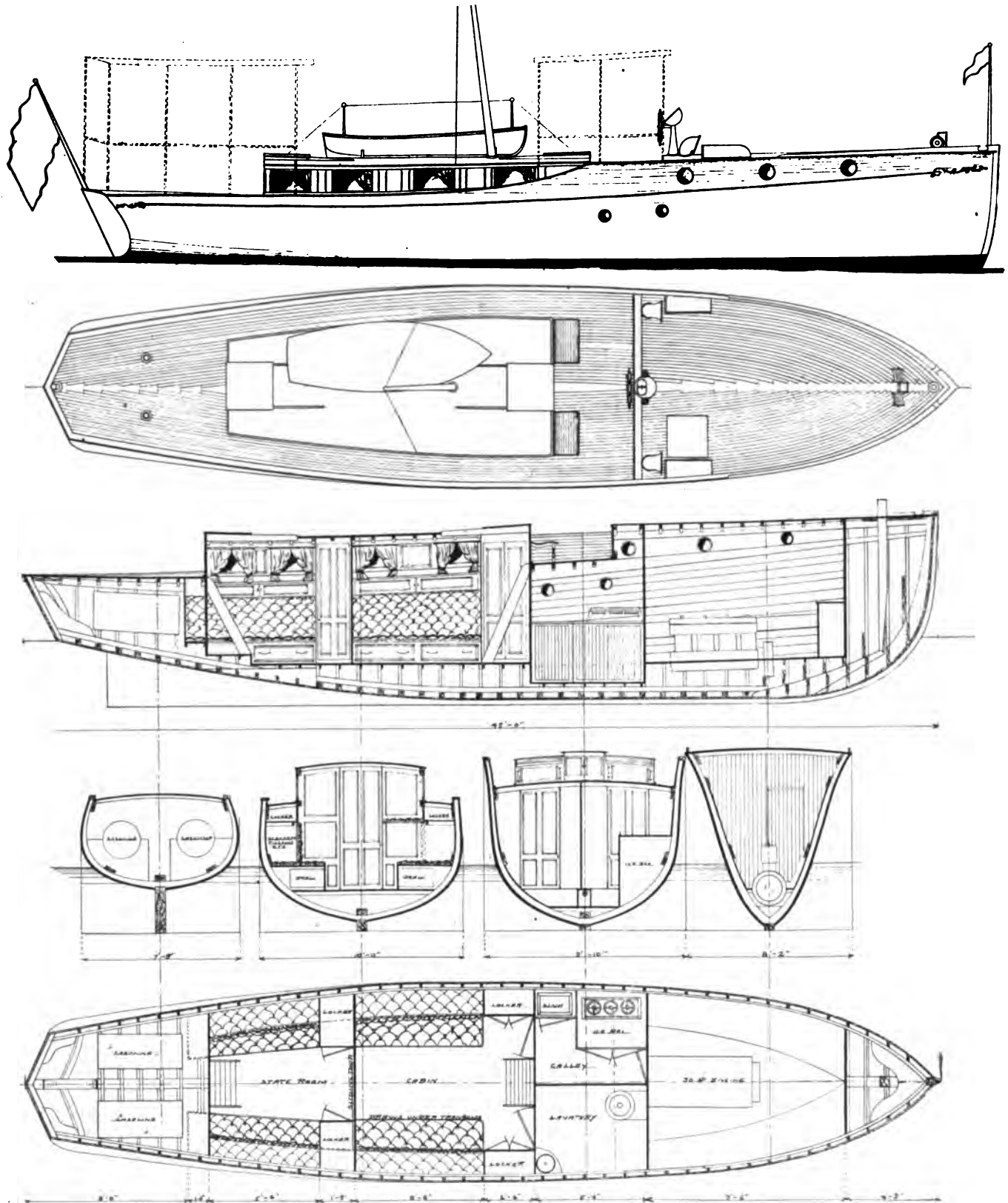
will be free from all structural weakness. The principal aim was to provide a boat that could be easily handled by a couple of boys, and with enough accommodations to make her suitable for cruising, yet to embody in her design sufficient speed to ensure good racing.

The topsail and staysail were included in the sail plan to make the racing more interesting in light weather, and partly to educate the younger element on the handling of light sails on larger boats.

The boats are being built by Rice Brothers, East Boothbay, Me., and will be ready for delivery on April 1st. Up to date contracts have been placed for boats by the following gentlemen: Messrs. W. B. Duncan, Jr., Chas. Lane Poor, E. Randolph, Clarkson Cowl, W. H. Judson, and A. H. Morris.

The displacement of the boats is 13,300 lb, and the area of the three lower sails is 780 square feet. Lead on the keel weighs 5,500 lb, and there will be 500 lb of inside lead in small pigs for trim. General dimensions are:

| | |
|------------------|-------------------|
| Length o. a..... | 40 feet 11 inches |
| Length w. l..... | 30 " 0 " |
| Breadth | 7 " 11 " |
| Draught | 5 " 11 " |



Forty-Five-Foot Raised Deck Cruiser. Designed by Mr. Southmayd Hatch, of New York City

45-FOOT RAISED DECK CRUISER

THIS 45-foot raised deck cruiser was designed by Mr. Southmayd Hatch for a member of the National Y. C., and is described by the designer as follows:

"The profile shows a graceful, sweeping sheer-line

with slightly curving bow and rakish stern. The deck without encroaching on the headroom below is large and comfortable. The bridge deck located just forward of amidships gives the steersman an unobstructed view in all directions, and a control of the engine from the wheel,

in addition to that in the engine room. Direct access to the engine room from deck is had by means of a flush hatch on the forward deck.

"The construction throughout is heavy as the boat will be used considerably for offshore work. The keel, keelson, garboard strake, plank-sheer, sheer-strake, are of the best selected oak, and where bending is necessary all wood is steamed. The planking is long leaf yellow pine. There is also a plentiful supply of hackmatack knees distributed throughout to add to the strength of the hull.

"The general arrangement consists of a watertight bulkhead fitted forward forming a chain locker, aft of which is located the engine room with two pipe berths for the crew. Aft of the engine room, under the bridge deck on the starboard side is the toilet and lavatory, opposite which is the galley fitted with a large ice-box, dish-racks, stove, etc. Aft of the lavatory and galley is the cabin, sleeping four people on separate berths, with plenty of light and locker room, and with a companion leading to the bridge deck. Owing to the deck cutting off the headroom of half of the transoms, an ingenious method was resorted to to obtain sufficient room for an upper and lower berth. The back cushion is made up on a pipe frame, pivots at a point just under the deck, swings out and up forming the upper berth, extending beyond the lower one a distance equal to that of the width of the deck, as will be seen by referring to the section plan of the cabin. In the daytime the space in the back of this cushion is advantageously used for stowing the blankets, pillows, etc., thereby keeping the lockers clear for clothing. The stateroom is also arranged in this way.

"Powered with a 25-h.p. Standard engine, the boat will develop 10 miles per hour, and should prove herself a comfortable craft in a heavy sea, owing to the ample beam and good deadrise given the underbody."

NEW STOCK CRUISER

THE drawings reproduced herewith show some of the plans of a 35-foot by 8-foot 6-inch cabin cruiser now being built for stock by the S. Moore & Sons Corporation of Elizabeth, N. J.

The design shows an exceedingly roomy and able little cruiser that has many very desirable features.

"Design everything properly, guess at nothing. Make the boat safe and comfortable. Use the best of materials, plenty of them. Let the workmanship be high grade. Equip the boat thoroughly; install the engine properly. Neglect nothing." These were the instruc-

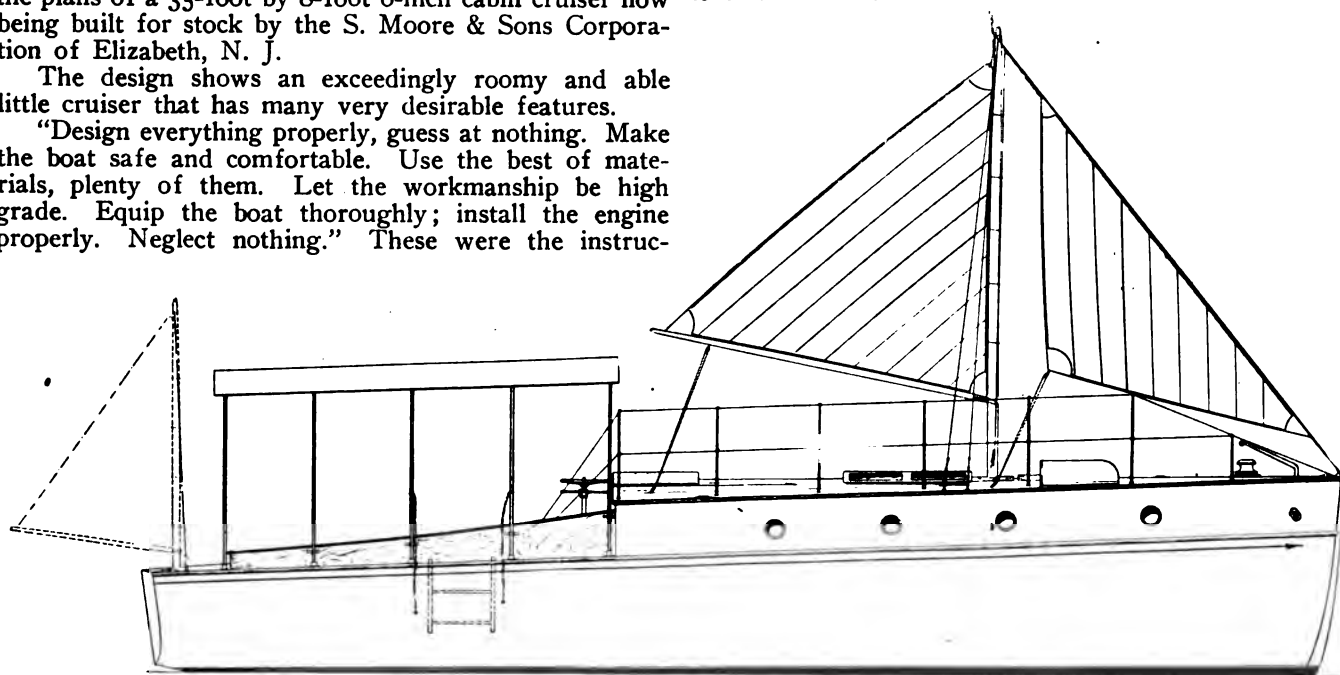
tions of the S. Moore Co. to their designers and builders when the plans were being prepared.

The constructional details of the boat have been worked out in a very thorough manner. The frame is selected white oak fastened with copper and bronze. A feature of the framing is the addition of several longitudinal stringers running from bow to stern and bolted to all the ribs. These add exceptional strength to the frame. The planking is of cedar riveted to ribs with copper rivets. The usual method of building stock boats of this kind with a single arrangement plan has been abandoned as being unsatisfactory and a little out of date. These boats are being built with cabins arranged in several different ways, so that a purchaser of one of these cruisers can go over the arrangements and select the one he prefers. This really puts these cruisers on a par with the "built to order" boats and gives purchasers all the price saving advantage of building in quantities.

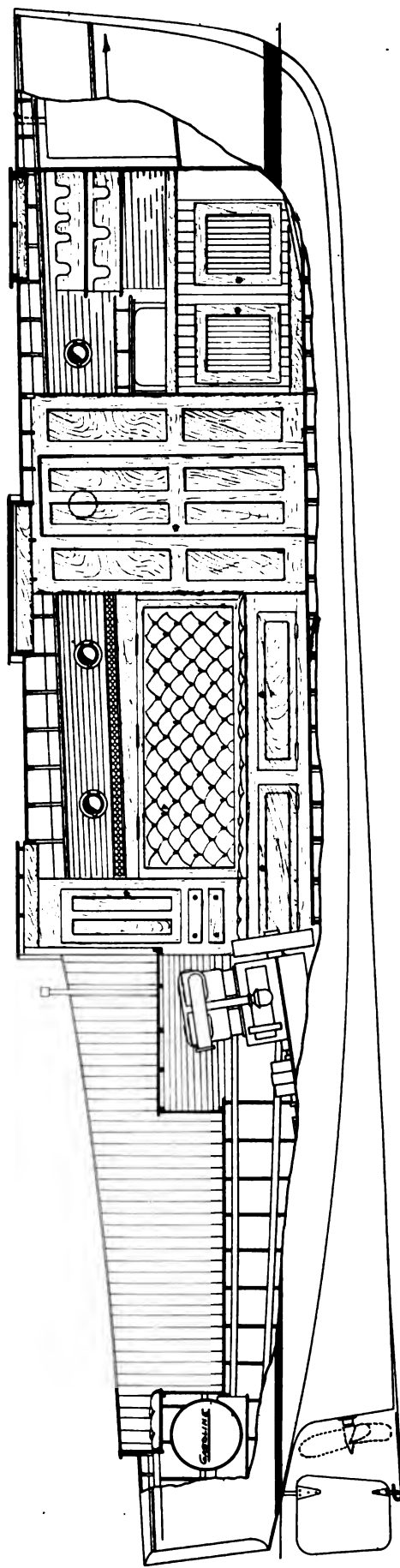
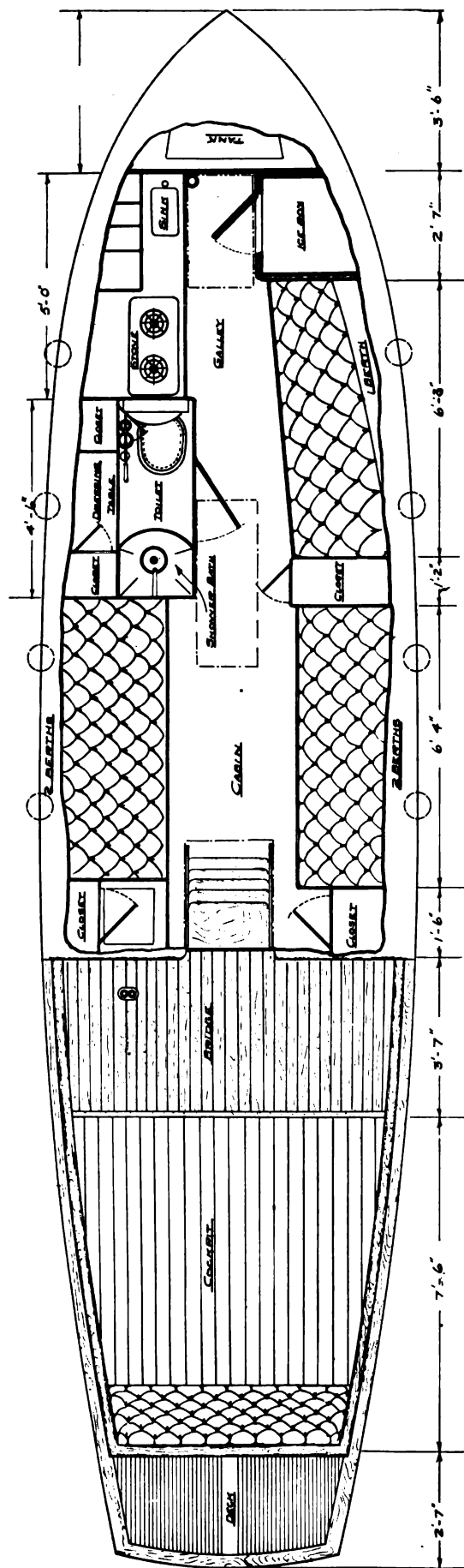
Noticeable features of the arrangement shown above are: The very well arranged and roomy galley, the unusually roomy toilet, the equipment of a boat of this size with a shower bath (this shower bath is worked by an independent pump attached to the engine). The amount of locker and closet space is very large. Berth arrangement provides for five persons (three on lower berths, two on upper). The upper berths are not make-shift affairs but are properly designed and fitted upper berths, fitted with Pullman lifts and upholstered on spring bottoms.

The engine equipment is installed with all controls leading to bridge. Engine can be started and controlled from the bridge and in addition, to make the boat a real single hander, the anchoring details have been worked out so that when desired, the man at the wheel can let go the anchor and check the chain when the proper amount has run out.

The engines will be two or three-cylinder, heavy-duty four-stroke machines, but the builders are ready to install any desired make. The boats are to be finished in white enamel, or white with mahogany trim, or all mahogany, thus again giving a purchaser an opportunity to suit individual taste.



New Stock Cruiser Being Built by the S. Moore & Sons Corporation, of Elizabeth, N. J.



Accommodation Plans of Thirty-Five-Foot Stock Cruiser

Eng. Lib.

THE RUBBER

MARCH, 1912

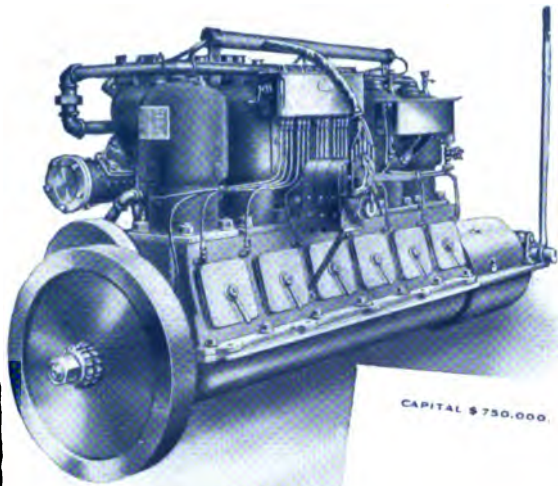
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July 12, 1911.

Mr. John J. Amory,
Gas Engine & Power Co.,
Morris Heights, N.Y.

My dear Mr. Amory:-

I have your letter of July 10th suggesting that we enter the Rainbow in the Great Lakes Power Boat League Cruise to contest for a prize offered by Mr. Scripps.

I am not much on cruising myself, especially for prizes, preferring to go it on my own hook and at my own convenience.

You will be interested to know that the Rainbow has logged a total of 15,500 miles since she came out, this being her fifth season.

She has undergone no repairs to hull or motor and insofar as I can see is in as good condition today as when you turned her over to us.

A record like this is the best prize that any man can have.

With kind regards, and thanking you for your suggestion, I am,

Very truly yours,

Richard D. Joy

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BATTLE OF BLOCK ISLAND

FROM AN OIL PAINTING

By Warren Sheppard

SUPPLEMENT TO
THE RUDDER
MARCH, 1912

*Reproduced and Printed by Thomson & Co.,
9 Murray St., New York City, N. Y.*

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MARCH, 1912
SUPPLEMENT TO

Reproduced and printed by Thompson & Co.,
9 Murray St., New York City, N. Y.



OFF THE SOUTHEAST SHORE



THE INNER HARBOR



AN ISLAND HOME



A DUTCH REMINDER



OLD ISLAND BOATS NOW GONE



ON THE WHARF

clination, till I recollected that, when the fish were opened, I saw smaller fish taken out of their stomachs; then thought I, 'If you eat one another, I don't see why we mayn't eat you.' So I din'd upon cod very heartily, and continued to eat like other people, returning only now and then occasionally to a vegetable diet. So convenient a thing it is to be a *reasonable creature*, since it enables one to find or make a reason for everything one has a mind to do."

With fish so abundant at their doors, the Block Islanders have had such a long and intimate acquaintance with the sea that as boatmen they have little more to learn of local conditions. In times past they perfected a boat of their own—now unhappily only remembered in the island for what it was in the good old days—that met all the requirements of a sailing craft for those waters.

Down near the East dock on my last visit to the island I came upon the hulk of one of those Block Island boats, and secured a good picture of it. In a few years pictures and models would be all that is left to recall the Block Island boats, were it not for the enterprise of an "off-islander," a lover of boats and a student of boat-building, Martin C. Erismann, a naval architect, who in 1910 bought the last Block Island boat afloat, took her to Boston, and there built a replica of her. I chanced to see this last boat of the island fleet to breast the seas, the *Lena M*, in the East dock. She was a broad-bellied old girl, having 12 feet breadth to about 32 feet over-all length, sharp at both ends, with a high bow and a low waist, a decked fish hold, a small "cuddy" under a flat deck forward, and an open cockpit. The long, tapering masts, without shroud or stay; the narrow-headed sails with their short club gaffs; the outside rudder and long tiller, were all oddities, peculiar in America to the Block Island type of fishing boat, although the rig originally was Dutch. Up to that time the only craft of that type I had seen out of water was the wreck in the sand near the head of the dock, and decay had gone so far with it that no judgment could be formed of what its lines might have been. It was to be my good fortune to see the *Lena M* out of water, and to look on an underbody that would measure admirably under the present English rating rule—a beautiful section, tapering from a long keel by the sweetest of lines to the full water-line with hollow ends. Here is the kind of boat, one would say, that would take the seas sweetly, blow high, blow low; heavy and under canvased for Summer winds, but a perfect sea-boat and a steady sailer when the seas run high and sharp and the wind screams cold across its crested tops.

In the old days, before the Government built the East Harbor—it is still spoken of occasionally as "the Government harbor," though built forty years ago—the boatmen had many a hard time saving their property when a storm came up. The boats rode to poles set thick in the bight before the beach; but when a bad blow came on it was necessary to pull them up on the sand. With a sea running the work was both laborious and hazardous; and some of the older men of the island remember an all-night job, with two or three yokes of oxen, pulling boats up on the beach to save them from the fury of a storm.

If one named a successor to the old-time island boats, it should be, in justice, a local power launch. As yet no distinctive type of power boat has appeared at the island. There is the usual variety of "converted"

boats, auxiliary sloops and small schooners with power. Yet in the dock I saw a launch that it seemed to me would in time develop into an island type, if the sail is ever entirely discarded there. With plumb stem and stern, good freeboard, liberal beam and moderate draught, the boat seemed well adapted to the needs of the fisherman. There was a small cabin-house, a half deck of liberal breadth back of it, and a cover in the cockpit for the engine. The rudder was hung outside, with the long tiller that plainly was a legacy from the old island boats. The fisherman knitting a net in the cockpit of this boat seemed thoroughly satisfied with his property; yet I daresay the captain of one of the auxiliary island sloops would not swap boats with him. As yet there is a disinclination with the all-the-year-round fishermen of the island to discard the sail. They depend on power more and more, but in the present stage of development of the gasoline engine, the sail is a good friend in case of a breakdown; while it is a great help in coming up from offshore in a snuffing head-wind.

All the heavier boats at the island therefore are now of the auxiliary type. It is a hard time, indeed, when they cannot give a good account of themselves. The sloops, though rather low-sided compared with modern Cape Cod catboats, and with large cockpits, are good sail-carriers, and are well powered. Most of them are built at Noank, Conn., and are heavily constructed. I saw one of them come in one morning from Newport, a dead beat of 20 miles against a heavy sea and wind. It was the sort of weather in which a yachtsman would wait for a better chance. The island boat hammered her way across in five hours and some minutes, under three-reefed mainsail, small jib and engine. It would have taken her longer, probably, under engine alone, and the voyage would have been less comfortable to the lone navigator aboard.

One is scarcely able to form a correct estimate of the skill of the island boatmen from seeing them in Summer. It is when Winter gales howl that they show their worth. It has been my fortune to see them, doing noble work for humanity, in a time of shipwreck and horror, amid icy blasts and vicious seas, laboring in a way that made their Summer party-sailing, loafing by the harbor side, and genial flow of yarns and profanity, seem like the trifling play of a toy world. Here they were face to face every moment with death—death in the terrible form of freezing in an open boat or on the icy sands; death that came to scores of helpless victims, but which spared others because of the skill and the fearlessness of those Block Island boatmen. We may smile at their guile in pursuing the Summer visitor's dollar, but it is because we do not know them. To see them rescuing men and women when to put out on a boat is to take life in hand, is to see them as they should be seen—men afraid neither of death nor the sea.

The work of the island men in saving lives after the sinking of the steamer *Larchmont*, in February, 1907, has few parallels in the long annals of heroic rescues by the islanders. The steamer, a side-wheeler, carrying about one hundred and seventy persons, passengers and crew, went to the bottom on the night of February 11th, after collision with a coal-laden schooner, the *Harry J. Knowlton*, of Eastport, Me. The scene of the disaster, Southeast from Watch Hill, on the mainland, was directly to windward of the island, the wind then



THE NEW HARBOR



A PARTY BOAT



POWER FISHING BOAT



ISLAND SLOOP5 AND CATS

being Northwest.' But for the island to leeward probably not a soul would have been saved from the Larchmont, for the weather was bitterly cold.

The story of the Larchmont's loss has a prominent place in the island's record of wrecks. No such horror was ever known there, among the hundreds of disasters in the history of the place. No less than ninety frozen corpses were taken from the sea by the islanders, who faced the bitter Winter gales without thought of reward, putting out in their schooners to search the sea for survivors when such work was attended by suffering and constant danger of disaster.

On the evening of February 11, 1907, the temperature was near zero all along the Rhode Island shore. The land was covered with snow, and the white beaches rimmed with ice. The blasts that came from the frozen shore across Block Island Sound cut like a knife, and on every floating thing ice made like white armor. As the sea was warmer than the air, a thin, low vapor hung over the water.

The steamer Larchmont, twenty-two years old—she was built as the Cumberland, at Bath, Me., in 1885—plied on a cut-rate line between Providence, R. I., and New York. On the evening of February 11th she left Providence at 7 p. m., made her way down Narragansett Bay and through drift ice, and about nine o'clock rounded Point Judith and shaped her course Westward up Block Island Sound. There were snow squalls early in the evening, but later the weather cleared. The mate was in charge when, about 10:30, a light was seen ahead. It was that of the schooner Harry J. Knowlton, coal laden, bound East under three jibs, whole main and fore and reefed mizzen, and making about 11 knots.

The men on the Knowlton saw the lights of the steamer when she was about three-fourths of a mile away. What followed on the schooner is told in the sworn statement of her captain, as follows:

"I was sitting in the cabin when I heard the mate say to the man on the lookout, 'See if that green light is burning.' I came on deck and asked the mate, 'What does that man say about the light burning?' The mate replied: 'The green light is burning all right.' I then looked under the spanker boom, when on the starboard quarter I saw a red light. I said: 'Is that a steamer?' and the mate said, 'Yes.' I then said to the man at the wheel, 'Keep her on her course.' He said, 'She is right on her course, sir.' I took another look on our starboard side, and saw a steamer shaping in such a way as to cross our bow, and not more than four steamers' lengths away. As the steamer shot across our bow she blew a whistle, and in from four to six seconds we were together."

The statement of the captain of the steamer was as follows:

"I went up to the pilothouse about 10:30, and spoke to the mate and quartermaster, and then passed into my stateroom, which was aft of the pilothouse, intending to turn in. I had no sooner reached my room than I was startled by several sharp blasts on the whistle. I jumped back into the pilothouse, and looking forward I saw the schooner a ship's length ahead of us, coming head-on to the steamer toward the port side. The schooner had luffed, and was coming into the wind with a great deal of speed. The mate shouted 'Hard a-port,' and the quartermaster pulled the wheel over very rapidly. The Larchmont had begun to answer her helm when the schooner crashed into her, a little forward of amidships

on the port side. The collision drove the steamer over to starboard, and the bow of the schooner cut the main steam pipe, filling the vessel with steam, which confused the passengers, who began to pour out of their state-rooms. I rang for the engineer and a deckman but could get no response, for the collision had destroyed the signalling apparatus."

(An official investigation showed that the speed of the approaching schooner had been misjudged by the mate of the Larchmont; that the schooner had not deviated from her course, and that the steamer tried to cross her bow when it was too late. The mate did not live to give his testimony at the hearing, but the facts were established from the testimony of the captain and quartermaster of the steamer, though both believed the schooner had luffed into the steamer.)

The Larchmont's electric lights went out, and in darkness the panic-stricken passengers and untrained crew of the Larchmont rushed for the boats and life-rafts. The horrible scenes that followed need not be described here. Men turned coward, and fought each other for places in the boats. Women fainted and were left behind. Children were forgotten. In their night clothes, wakened from their first sleep of the night, many of the passengers began to freeze as they stood on the snow-covered, slanting deck, waiting a chance in the boats. In less than thirty minutes after the collision the Larchmont went down in 23 fathoms of water. The schooner had drifted off unmanageable and was staggering toward the beach, where she fetched up two hours later, near the Quonocontaug Life-Saving Station, East of Watch Hill.

All through that bitter night the people of Block Island, unconscious of the tragedy being enacted so near them, slept peacefully in their warm beds. A doctor, called for a midnight visit, remarked that though a thin vapor covered the sea, he could see the light on Montauk, 15 miles away, as he rode across the island. A single rocket thrown from the steamer would have brought life-savers to the scene from the Rhode Island shore, and would have brought out the Block Islanders to the rescue, even in the 40-mile gale that so searchingly swept the Sound.

No rocket was sent up, and when the family of the light-keeper and the life-savers on Sandy Point, the North end of Block Island, rose next morning, they saw nothing unusual in the aspect of the wintry sea. About six o'clock the lightkeeper's daughter went to the door of her home, and there saw a boy, ice-covered and near dead, who mumbled a few words about a boat on the beach. This was Block Island's first intimation of the horror of the Larchmont. As soon as the light-keeper had taken the poor boy in out of the biting gale, he telephoned the life-saving station, and a search of the beach began. It soon revealed a metal life-boat, such as coast steamers carry, broadside to the beach, and half full of ice and water. The body of a man, lashed to a thwart, was barely discernible under a coating of ice. Aided by comrades the life-saver got the boat out of the surf, and cut the man away from the thwart. There was life in him, but the spark was faint, and much work was needed to bring him back to consciousness.

As the life-savers went on with their patrol of the beach they soon saw two men staggering toward them over the frozen sand. Running to meet them, the life-savers supported them to the lighthouse. They were the captain and quartermaster of the Larchmont. From

them was obtained a story of the disaster. While escorting the captain to safety the surfmen stumbled across a prostrate body on the sand, face downward. A life-saver took the frozen form in his arms and carried it to the lighthouse. Here with the help of the light-keeper's daughter he cut the ice-clad clothing from the prostrate form, and worked to nurse the spark of life, indicated by a few weak heart-beats, into fire. But it was too late, the man soon passed to death in his hands.

The telephone had now carried the news of the disaster to the island homes, and from every door men came out to aid in the search for the living or the dead from the sunken steamer.

By mid-forenoon a third boat came drifting in. In it were nine frozen bodies and one man who was alive. He was a young blacksmith, whose twenty-one years and robust frame had carried him through a night that must remain, like a dark nightmare, in his memory until his dying day. One man in the boat, driven mad by suffering from the cold, had ended his life by drawing a razor across his throat. On a life-raft that came ashore a little later the only survivor was a man whose hands had frozen to a life-line, keeping him from being washed into the sea.

But the greatest work of the Block Islanders was not on the beach; the life-savers, in pursuit of their regular duty, could attend to all that was to be done there. It was on the boisterous Sound, whose dangers they braved in their little schooners, in the hope that they might find some living victims still within reach of help. For three days these boatmen of Block Island cruised the Sound, in weather so bad that on the first day the captain of a great seagoing tug at Newport re-

fused to take me to the island when I named to him \$200 as the price of the passage.

I will give the names of these volunteer ships of mercy of Block Island, so that any one of my readers who may see them, may dip his flag in honor to them. They were the schooner Elsie, which picked up at sea, beyond the island, where hope was wellnigh gone, eight survivors of the wreck, the only ones thus found, for of every other boat-load that went past the island, not a soul survived. The schooner Elsie also brought in seven dead. The schooner Clara E brought in thirteen bodies; the schooner Edward H. Sneed three, the schooner William Talbot Dodge one, the schooner Little Fred six, the yawl Theresa seven, making thirty-seven bodies and eight survivors taken from the sea by the people of the island.

It is not needful to dwell here on the details of how these unfortunates were found, or the painful scenes when, in the terrible Winter weather, they were landed at the harbor. The sea gave up in all ninety-three bodies of the Larchmont victims. I saw about fifty of them, laid in a row, great lumps of sand-covered ice, and the picture of them now comes before me at times with a force that makes me shiver. One thing I noticed in all: the hands were clenched and held before the breast, as if to ward off until the last the attack of the killing cold on the seat of life.

Many a lost sailor, buried by kindly stranger hands, lies in an unmarked grave on Block Island. Many a house contains souvenirs of wrecks. Many a strange story is told about the evening fire of strange things that have happened on those wind-swept shores.



The Schooner That Sunk the Larchmont

Of the various legends of island wrecks the best known is that of the *Palatine*. It is difficult from the misty past and its fabulous stories, to sift out the facts about the *Palatine*. The poet Whittier, with the license that allowed him innocently to libel a community without regard to facts—as he did the women of Marblehead in the story of Skipper Ireson—represented the islanders as luring the ship ashore by false lights, then plundering and burning her. Some of his lines run thus:

"Down swooped the wreckers like birds of prey,
Tearing the heart of the ship away,
And the dead had never a word to say.

"And there with ghastly shimmer and shine,
Over the rocks and the seething brine,
They burned the wreck of the *Palatine*.

"In their cruel hearts as they homeward sped,
'The sea and the rocks are dumb,' they said,
'There'll be no reckoning with the dead.'"

As a result of this, according to tradition, the people of the island saw a ghostly light, at times, over the waters of the Sound, which was called "the *Palatine* light." The poet thus refers to it:

"Now low and dim, now clear and higher,
Leaps up the terrible ghost of fire;
Then slowly sinking, the flames expire.

"And the wise Sound skippers, though skies be fine,
Reef their sails when they see the sign
Of the blazing wreck of the *Palatine*."

That some sort of strange light has been seen in the

past over Block Island Sound is not disputed, but its presence might be susceptible of explanation because of the presence of large deposits of coal on the adjacent mainland, and therefore probably also under the water, which may at times give off a luminous gas.

As for the *Palatine*, what she was and how wrecked, if at all, history affords no exact data. That a ship of this name was at the island about a century and a half ago, and left a considerable number of her passengers, is probable. Mutiny, or disease, or calms had brought her to distress, and the islanders rendered her some sort of service, which may well have been towing her free from threatening sands, and assisting in the landing of her passengers, and the repairing of the ship. That the vessel had touched at the West Indies is indicated by the fact that there are still in existence on Block Island certain mortars and pestles made from *lignum-vitæ*, of which there has always been passed on by their owners, from one generation to the next, the statement that the wood "came out of the *Palatine*"; and we may surmise that it may have been a reward to some islander for his services. One thing seems sure, however, that no vessel named the *Palatine* was ever wrecked on Block Island.

The South side of Block Island has always exacted a heavy toll from shipping. A list of all the wrecks that have occurred there would fill this page. Modern warnings and modern wrecking appliances have saved some of the vessels that have taken ground on the island in recent times, but in the old days to strike on Block Island was to make the last port.

A single account of an old-time shipwreck will show



The Last of Her Kind

how they occurred sometimes at the end of a long voyage. The ship *Ann and Hope* fetched up on the Southwest end of the island on the night of January 10, 1806. Following is a description of the ship and an account of her loss, from contemporary records:

"The ship *Ann and Hope* was built of white oak, at Providence, and launched in May, 1798. She was owned by Brown & Ives, and named for their respective wives. She was 98 feet on the keel, 32 feet 1 inch beam, flush decked, registered 550 tons and mounted 12 nine-pounders. The ship made six voyages between Rhode Island and Batavia and China. On her last voyage she left Providence with a cargo of Hollands gin and sperm candles, on November 8, 1804, for Lisbon, where she called to take on hard dollars, and arrived at Batavia May 2, 1805.

"On her return, in the Indian ocean the ship encountered a storm, which so greatly damaged her she was obliged to put in at Isle of France for repairs. These were effected at a cost of \$20,000, and she reloaded—her cargo was chiefly pepper—and sailed again September 27, 1805. The voyage was uneventful thence to the American coast, where land was made January 8, 1806, and supposed to be Hampton Heights, Long Island. The wind was variable, but on the 10th came in Westerly, with snow squalls. On the evening of the 10th the ship made Block Island, bearing E.N.E., about eleven o'clock, and the course was altered to pass to the South of it.

"Captain Laing was on the quarter deck, the first and second mates on the forecastle, and the men in the rigging reefing topsails, with the ship making about 11 miles an hour, when a man on the topsail yard called to the deck, 'We are close in here.' The word was passed aft, but it was too late. The ship touched bottom.

"At first she appeared to touch very lightly. All hands were called. The captain instantly ordered the helm hard up, which was immediately done, to keep the ship off the land, but not minding her helm she very soon grounded and began to rise and fall with the swell of the sea, and beat on the bottom, which proved to be a reef of rocks. At the third or fourth stroke she carried away the rudder. The mainmast was immediately cut away, and the ship soon after bilged. She continued beating on the rocks about two hours, the surf constantly breaking over her until the tide ebbed and left her so that there was not sufficient water under her to lift her.

"About daylight the tide rose and the ship began to beat again; the fore and mizzen masts were then cut away. A signal gun was fired, and soon after a man was seen on the shore, and in a short time a considerable number, but the surf was so great that it was impossible for them to afford any assistance, or for a boat to pass from the ship to the shore.

"About ten o'clock in the forenoon the decks parted from the bottom and drifted toward the shore. All the persons on board, being thirty-six in number, clung to the decks, a heavy surf breaking over them all the time. About eleven o'clock the decks broke in two at the mainmast, and all the ship's boats were stove. All on board except four persons were on the after part of the deck. The fore part soon broke up, and three of the men thereon were drowned. The other reached the shore by swimming, and was taken from the surf nearly dead. About twelve o'clock the after part of the deck drifted near the shore, so as to be within the heaviest of the surf. The people on the shore having procured a boat

which they had brought across the land a considerable distance, ventured off at hazard of their lives, and in three times took off all the persons who remained on the after part of the deck, and landed them on Block Island, Captain Laing being the last to leave the wreck."

The people of Block Island—who appear to have been no better and no worse than the run of English settlers on those shores—got an undeservedly bad name in early times for being charged with crimes committed by unwelcome guests to their island, namely, the gentry of the black flag. The island afforded a convenient rendezvous for pirates of high as well as of low degree, and often they favored it with their presence. The much-maligned Captain William Kidd, coming home to make an accounting of his voyage, transferred some of his goods to other vessels off Block Island, for their carrying to New York, Boston and Stamford. In the same year—1699—a much more guilty man, the pirate Bradish, used Block Island as his headquarters while he parceled out his gains among his followers. The story is dimly outlined in an official letter from Earl Bello-mont, royal governor at New York, to the Lords of Trade, dated "New Yorke, May 3, 1699." Herein is stated that Bradish "ran away with the ship called the *Adventure*, of London, being an interloper, to the East Indies, leaving the commander, Captain Gulleck, on some island in the East Indies with some officers and men that belonged to the ship."

On the homeward voyage of the pirates, "They came to the East end of Nassau Island," the paper continues, meaning Long Island, "and sunk the ship between that and Block Island. The ship (being) of about 400 ton. I had no notice till a week after the ship was sunk." The royal governor complains that he "had no man of warre, which the Lords of the Admiralty seem to think these Provinces unworthy of," otherwise he might have given the pirates chase. However, Bradish and his men were soon traced, with their plunder, some of which was seized in New York, some in Boston and some in New London. The examination of this treasure showed the work of a joker somewhere in the course of events leading thereto, for: "Bags of Jewells were opened before myself and the councill," writes the royal governor, "where I ordered a Jew of this town to be present, he understanding Jewells well. At first we thought there had been £10,000 worth, but we soon found they were counterfeit."

Of the pirates the governor wrote: "I seized three men in his town (New York) who I had notice were come from Block Island and had concealed there some pirates' mony, and I secured them here till I gave the governor of Rhode Island notice where the mony was concealed, which I hear he has since secured, Block Island being in his government. That mony, I understand, is near £1,000."

The total of the plunder taken from the pirates was "near £10,000 pounds"—a respectable sum, as money was valued in those days at five times as much as now. Seizing the pirates was not so easy a task as taking their gains. The governor, hearing that some who had sailed with Tew lived in New York and "had wives there," "laid out," he says, to catch them, but they "were too well befriended in this towne to be given up to justice." The hunter for pirates' treasure on Block Island to-day may rest assured, that though Bellomont was no match in cunning for a pirate's wife, he was a keen searcher for pirates' plunder, and that whatever escaped him of

Bradish's treasure would not be worth looking for on Block Island to-day.

The visit of Bradish to Block Island was only ten years later than a visit by French privateers, who sacked the houses of the inhabitants, killed their live stock and stayed a week, holding revel, replenishing their water and repairing their ships. There is a fine story of a sea fight between their ships and two Newport sloops that put off to intercept them on their departure, ending with the escape of the Frenchmen in the night.

We could dwell long with profit on the early stories of adventure on and about Block Island, from the days when, in 1614, it was named by Adriaen Block. We may be sure the worthy Dutch skipper was not the first white man to view the island. Verrazzano undoubtedly saw it nearly a century before Block, and called it *Claudia*. On the old Dutch maps it is down as "Adriaen's Eyland," and so it remained until English settlers chose to call it Block Island. By this name it was known as early as 1672, at least, in which year the inhabitants incorporated the town of New Shoreham. By this name, its official civic title, few people know Block Island, and few would care to know it thus, I am sure, if the title were to lose for it the name of Block.

Hardier mariners never sailed the seas than some of the old Dutch captains who explored the waters through which we now sail for our pleasure on the coast of America, and among them none had harder experiences than Adriaen Block. The discoveries of Henry Hudson having given a great stimulus to exploration plans in Holland, a company was formed at The Hague shortly after his return, to carry on similar explorations in the new world. Its members were five *schippers*, and Adriaen Block of the *Tiger* stood second in the list.

Loading their vessels with articles for trade with the Indians, the five captains sailed for New Netherlands, where in the Summer of 1613 they traded peaceably, to their entire satisfaction.

"All these skippers sailed, in the Autumn of 1613, for home," says Captain Arthur H. Clark in his "History of Yachting," "excepting Adriaen Block. He was nearly ready for sea when his vessel, the *Tiger*, lying at anchor, laden with furs, in the harbor of Manhattan, just off the present Battery Place at the foot of Greenwich Street, accidentally caught fire, and was damaged beyond repair.

"Skipper Block and his crew found themselves in a serious dilemma. Too late in the season to expect any vessel from Holland, and there being no huts or houses on Manhattan in which white men could pass a Winter, their only alternative was to rely on the help of the Indians. And in this they were not disappointed; every kindness and assistance was shown them. Block and his men at once built huts for shelter and protection from the cold. Afterwards he and his companions turned their attention to building a small vessel to replace the *Tiger*.

"It seems probable that the *Tiger* was not entirely destroyed, but that a considerable part of her stores, fittings, rigging and sails were saved. These were no doubt used in constructing the new vessel; especially the

metal bolts and necessary tools; otherwise it is difficult to see how she could have been built at all."

Block's historic vessel was not only the first built in the vicinity of New York, and the second decked vessel built within the present limits of the United States, but was also the first vessel built in the New World to be designated as a yacht. The term in those days did not mean necessarily a pleasure vessel, but was applied by the Dutch to small sailing tenders of larger ships, or of squadrons, or the small vessels in which officials or merchants made short voyages, or were ferried from ship to shore, or the reverse.

There has been some doubt in the minds of historians as to the spot on which Block built his vessel. Thomas A. Janvier, in his "Dutch Founding of New York," assumes that "the shipyard in which Block and his men worked was close by the present meeting place of Pearl and Broad Streets,"—and therefore on the East River. Captain Clark, much more careful and expert in research on such a subject, says: "Along the shore of the North River, between the old Castle Garden and Rector Street, at that time was a high bluff covered with fine oaks, suitable for ship timber. Seeing that these could be easily lowered to the sandy beach below, the place was selected by Block for building his little vessel. Long afterward there were flourishing ship-building yards along this strand till the timber was all cut down, and the ridge later levelled."

By Spring Block and his men, having worked doggedly through the harsh Winter, were ready to launch their little ship, which they named the *Onrust*, or *Restless*. Her dimensions, as given by a Dutch chronicler, De Laet, were: eight lasts, or about 16 tons burden; length on deck 44 feet 6 inches, on the keel 38 feet, breadth of beam 11 feet 6 inches.

In the little vessel Block and his men boldly trusted themselves to a protecting fate, and directed their course through the rushing tides of Hell Gate, and into the broad Sound that the Indians told them led, far to the Eastward, into the open sea. They were probably the first white men to sail through Hell Gate into Long Island Sound.

There is no connected narrative of Block's voyage, but from the bald statements of the Dutch records it is easy to follow his course. He coasted the shores of the Sound, and at its East end it was doubtless with pleasure he beheld the fair shores of the island that bears his name.

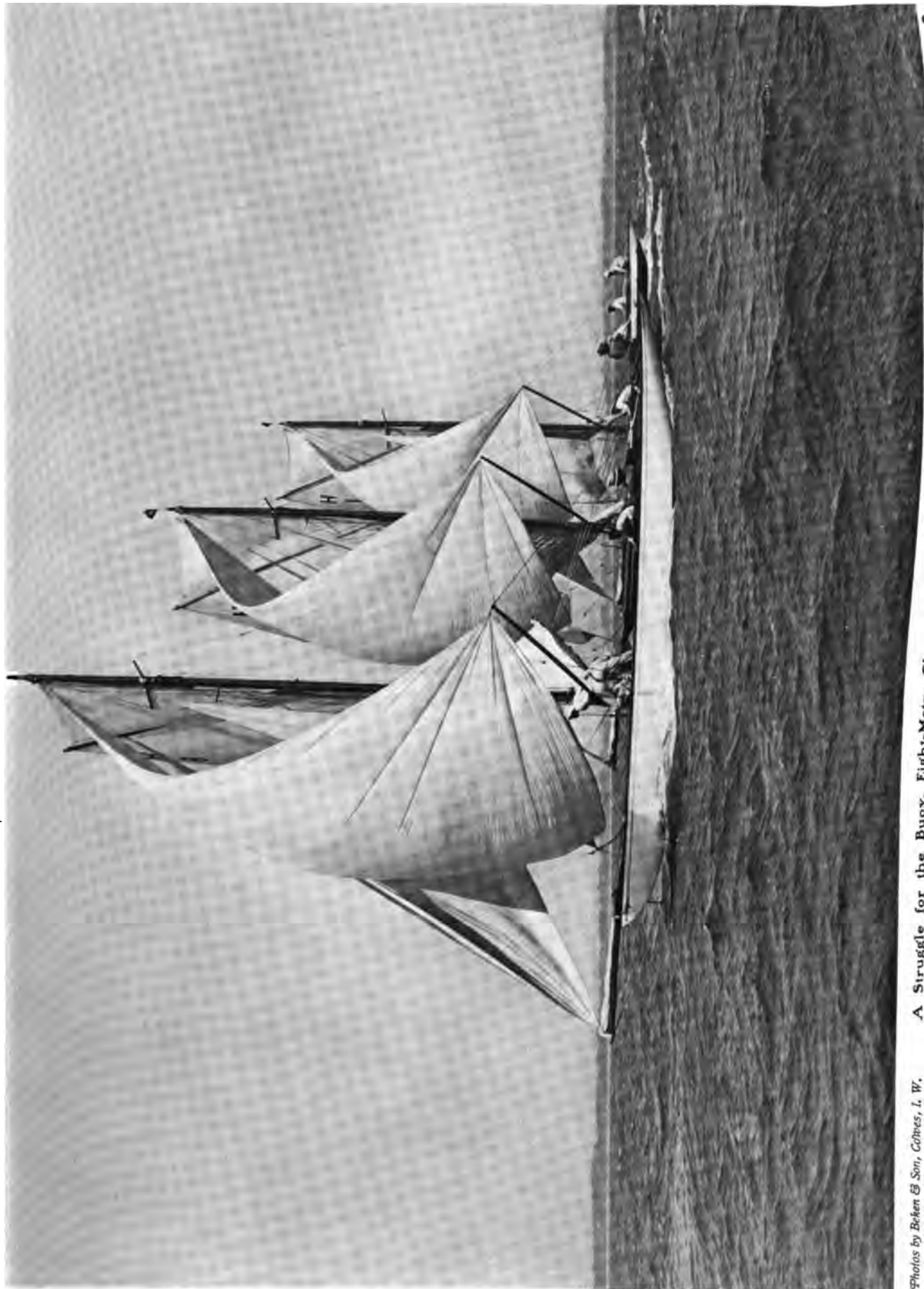
Coasting Northward, Block in his little bark rounded Cape Cod, and explored Massachusetts Bay—six years ahead of the black-hatted Pilgrims. His Northing ended somewhere near Boston, and with a prophetic touch he gave the place the name "Pye Bay." Turning Southward he came again to the sounds he had followed North. Here—at a spot not accurately designated—he fell in with another ship of his company, the *Fortune*, out for a second voyage. By reason of seniority in the company, probably, Block exchanged his *Onrust* for the *Fortune*, in which he returned to Europe, while the *Onrust* under her new captain kept on Southward, and explored Delaware Bay, from which she returned successfully to Holland.



The Fifteen-Metre Class at Cowes. Hispania, with H. M. The King of Spain Steering and Leading Paula, Mariaka and Sophie Elisabeth. Hispania Was the Winner of Both International Cups, International Regatta, Ryde, 1911



**Rollo, Norwegian Champion International Rating Class, Twelve Metres. Designed by Mr. John Anker.
Winner of Both International Cups, International Regatta Ryde, 1911**



Photos by Beken & Son, Cotuit, L. W.

A Struggle for the Buoy. Eight-Metre Class, Spero Leading, Endrick and Norman



Meteor, 129 Ft. O. A., Owned by H. I. M. The German Emperor. Winning the Town Cup, 1911, at Cowes, I. W.



Waterwitch, 120 Ft. O. A. Designed by Mr. William Fife, for Mr. G. Cecil Whittaker, of Glasgow, Scotland

THE MACKINAC RACE

C. Edward Soule, Jr.



CONTRARY to all tradition and precedent, the Eighth Annual Mackinac Island Race was won by Mavourneen—one of the smallest of the eleven starters and the only small boat that ever gained the coveted honor. There is no denying that unusual weather conditions and an opportune shifting of the wind contributed materially to Mavourneen's victory, but it is equally true that such conditions afford about the only chance the small boats have for victory under the present allowance—about two-seconds per foot of over-all length for each mile of the course. Not in any other of the eight races had the large boats had any competition from the smaller craft, and the narrow margin of Mavourneen's victory indicates that the large-boat monopoly would have continued unbroken except for the good fortune of the little fellows in striking such very unusual and extremely favorable weather. But the victory of Mavourneen, although pleasing to the admirers of small boats, affords little comfort to the rapidly dwindling band who fondly cherish the illusion that this annual distance event gives an equal chance to all—large or small, fast or slow—for this year's winner was the most modern and one of the best appointed of the eleven starters.

When the Mackinac Race was first established by the Chicago Y. C., in 1904, it was thought that the varying conditions to be encountered in so long a contest—over 300 miles down Lake Michigan and more than 20 miles East through the Straits of Mackinac—would tend to equalize the chances of all contestants, regardless of size or ability, and that navigation and seamanship would prove important factors in determining the result; but the first few races were sufficient to demonstrate that these theories, although very plausible, were not in accord with actual results. It was a pretty and popular sentiment to refer to each approaching contest as "anybody's race," and it was a pity to awaken the dreamers of sweet dreams, but there was no mistaking the plain and practical teaching of each successive race—that only a very speedy boat had a reasonably fair chance of winning, barring accidents and flukes of a remote possibility! Navigation and seamanship and fortune all played their little parts in the long race, but they could not make a slow boat fast or a fast boat slow, and each year's result made it more and more evident that, while power and ability were valuable adjuncts to safety and comfort, the only really dependable reliance for victory was speed—with chances strongly favoring a large boat because of the small handicap imposed.

Navigation and seamanship had proved such important factors in the comparatively short races from Chicago to translake ports that it was confidently believed that they would be even more important in determining the result of the long run to Mackinac Island. It was a most natural supposition that this run of more than 300 miles would afford a splendid opportunity for a skilled



Mavourneen, Capsicum and Illinois Starting in the Mackinac Race, Which was Won by the Former
Photo by Hall

and experienced navigator to gain a material advantage over his less able competitors, but the peculiarity of the course to be traversed had not been given much advance consideration. While some ability as a navigator might have been required to arrive at a small island 300 miles distant in the open sea, it was very different where the last 200 miles of the course skirted a well-marked shore and terminated, funnel-like, in a narrow and easily located Strait, and from the very outset the novice has picked the course with no less facility than the trained and experienced navigators. Even if one's position chanced to be in doubt a friendly steamer was almost sure to heave in sight and set him right before any harm resulted, so navigation has never proved a factor in the Mackinac Race except possibly in 1906 when Vanenna, romping to the finish, an easy winner of the Cup, grounded on a reef at Skilligalee and tarried so long that Vanadis slipped across the line to victory. There is also the possibility that in the strenuous race of 1911 Valmore lost the schooner prize, and perhaps the Mackinac Cup itself, through failure to negotiate the last few miles of the course in a blinding rain; but the history of the race discloses no other instances where any material advantage was gained or lost through navigation, or the want of it. Nor has Dame Fortune mixed in the race as much as had been anticipated, there being no instances on record in which any of the contestants have been materially benefited by breezes not also enjoyed by at least some of her competitors.

It would undoubtedly add greatly to the uncertainty and interest in the long race if navigation could be made more of a factor, but natural conditions are such that about the only way in which this could be accomplished would be to lay the course around a stakeboat anchored about 200 miles down Lake Michigan and in such location that a yacht would not be able to make a landfall on either side of the lake without deviating widely from

a direct course. It would take a little real navigating to find this boat and the added uncertainty might attract skippers willing to pit their skill as navigators against the superior speed of their competitors. There has been some talk of changing the destination of the race to some Lake Michigan port—possibly Charlevoix or Harbor Springs. The use of a stakeboat would make it possible to maintain the course at approximately the present length as well as injecting into the race the safer but more difficult navigation. The only possible objection to the stakeboat is the great depth of water at the desired location, but this could doubtless be overcome in some way.

But the discovery that the Mackinac Race was a contest of class and speed, and not to be determined by the stroke of fortune or a clever coup in navigation, failed to retard its growth or lessen its popularity. On the contrary, it proved a blessing in disguise by creating a competition so keen and so general as to result in a very notable and welcome addition to Chicago's fleet of modern racers, which would have been much tardier in coming had it been found possible to win the Mackinac Cup with the older and slower boats. In the opening race, in 1904, only two of the nine starters were boats designed by men of prominence in their profession, while in the 1911 race nine out of the eleven starters were designed and built by the ablest the country affords, and the other two were the pick of the locally built fleet.

Started in 1904, the Mackinac Race at once attracted attention in the yachting world and excited no little public interest. Eight successive and successful contests have been sailed under every conceivable condition of wind and weather, varying from the calm of 1908, which seriously taxed the patience of the crews, to the fierce storm of wind and rain in 1911, which scattered the fleet and subjected yachts and crews to the severest test. The fact that the crews are composed largely of amateurs, even on the larger boats, speaks well for the courage and



Photo by Hall

Start of Amorita and Valmore

ability of Chicago's yachtsmen and doubtless has contributed much to the popularity of the event.

Wednesday, August 3d, was the date of the opening event and strong winds from the Southeast and South sent the ten contestants down the lake at so fast a pace that Vencedor's time—37:46—stood as the record for the course for six years, until clipped by Valmore in 1910. Competition was practically limited to the large fin-keel sloops Vencedor and Vanenna, which fought it out all the way down and finished less than five minutes apart. Vanenna was handicapped by the loss of her topmast and also had to allow her rival nearly half an hour in time. The 38-foot Seabird yawl Naiad beat out the balance of the fleet and took third prize, the classification by rig not having been adopted until the following year.

In 1905 Vanenna and Vencedor did not enter the race and the schooner Mistral proved the best of the nine starters in a thrash to windward for practically the entire distance. Mistral was four days in reaching the island, which is more than one full day longer than any other winner has required. Five of the contestants got their fill of bucking a stiff Norther the first night out and sought the comfort of friendly harbors, but two of them afterwards took up the chase and eventually reached the finish line, after sheltering a number of times. This race is notable as the only one in which the wind has come from forward of the beam for any appreciable time.

Although Mistral had grounded on Graham Shoal, four miles from the finish, in the opening race, the first costly accident came in 1906 when Vanenna, with an easy victory all but won, grounded at Skilligalee and hung there while her rivals passed on to victory. This unfortunate mishap to Vanenna gave the Cup to the yawl Vanadis and, incidentally, made possible the closest competition in the history of the race—the yawl Naiad crossing the finish line only four and one-half minutes after her allowance from Vanadis had been exhausted.

In 1907 Vencedor again showed her superiority over the fleet, but the schooner Valmore became a participant in 1908 and celebrated her advent by eclipsing Vencedor as handily as the famous old sloop had triumphed over her rivals in previous years. The importation of Valmore, however, was only the beginning of the new order of things, and 1909 found Amorita, fresh from her record-run to Bermuda, disputing Valmore's claim to supremacy. As was anticipated, the two schooners had the race to themselves, although nine other yachts pluckily pursued them down the lake, content to pick up such

class prizes as escaped the leaders. There was not wind enough to give Amorita any advantage over her smaller rival and it was nip-and-tuck between the two throughout the 42-hour run down the lake. Amorita managed to cross the finish line five minutes in advance of Valmore but was a loser by more than two hours on corrected time. The 1910 race was practically a repetition of the previous event except that Valmore succeeded in finishing ahead of Amorita this time, but was compelled to establish a new record for the course to do it—31:24:06. This was Valmore's third successive victory for the Mackinac Cup—a consistency of performance which eloquently attests the ability of the ship and her crew.

But it remained for the 1911 race to eclipse all others in excitement and thrilling experiences, and it was easily the most notable of eight stirring contests—notable for the high character of the eleven starters; notable as the only race won by one of the smaller boats; notable as the first contest sailed under the Universal Rating rule; notable for the establishment of a new time record for the course; notable for the unfortunate destruction of a famous racing yacht, and notable for the severity of the test to which all contestants and crews were subjected.

Mavourneen, the winner, is a George Owen boat, 50 feet over all, built in 1910, and brought to Lake Michigan in 1911 by Mr. Edward M. Mills, of the Chicago Y. C., after a successful first season on Massachusetts Bay. She was designed under the new rule and has a low rating compared with most of the boats designed prior to the rule. Pitted against Mavourneen were ten products of America's most famous designers—the big Cary Smith schooner Amorita; the Lawley schooner Valmore; two Herreshoff boats, the yawl Polaris and the sloop Shark; the Crowninshield sloop Illinois; the Small Brothers yawl Juanita; the Hoyt sloop Capsicum; the sloop Prairie, designed by W. P. Stephens, and the sloops Vencedor and Iroquois, locally designed and built. Mavourneen was sailed by Mr. Otto C. Schoenwerk, Jr., one of the best of the local amateurs, and her record of better than 8½ miles per hour for the long run is proof of her crew's good work.

The yachts were started on the afternoon of Saturday, July 22d, in two detachments, the five sloops under 55 feet over all going over at 3:00 and the three pairs of large boats—two schooners, two yawls and two sloops—ten minutes later. A good breeze over the starboard quarter made it a balloon-jib run, and the racers traveled so fast that it taxed many of the attendant pleasure



Photo by Hal.

Vencedor, Amorita, Shark and Valmore, Two Minutes After the Start

craft to keep the pace—most of them returning to port after a short spurt. Except for an occasional Southerly shift, that tempted some of the boats to try their spinners, the wind held pretty true all night. The big fellows all had land in sight at daybreak Sunday and the little fellows were not much later in picking up the sand-dunes of Michigan. As Sunday morning came on the wind freshened and the dash down the Michigan shore became a roaring, foaming procession of careening craft, all ragging on to the extreme limit in the desperate struggle to hold or improve their respective positions. Barometers were falling rapidly and ominous clouds were banking up in the Southeast, but on the yachts sped in the record-breaking rush, each inspired by the rapidity with which the coast-marks appeared ahead and then dropped from sight astern. Sheltered by the nearby land, they enjoyed the full strength of the increasing wind unhampered by sea—one of the rarest of yachting's delights. The towering *Amorita* swept around Point Betsie at 9:40 Sunday morning and headed for the Light-Vessel in the Manitou Passage, having averaged exactly 11 miles per hour for the 204 miles. *Valmore* was hull-down astern, and the next yacht, the yawl *Polaris*, was trailing the flagship at about the same distance, with the balance of the fleet coming along behind but much better bunched than the leaders.

By noon on Sunday the Southeasterly wind had freshened to such an extent that most of the boats had shortened sail and the continued falling of the barometer left no doubt that bad weather was brewing, but the Southwest-storm warning flying at the display station at Sleeping Bear gave the comforting assurance that the wind would continue fair, no matter how hard it came. By the middle of the afternoon the barometer had sunk below 28.50 on some of the boats and the savage squalls that now began to come across from off the land started the snuggling down on all the racers, large and small. By this time the large boats were pretty well through the Manitou Passage and the little fellows—except *Capsicum*—were around Point Betsie and heading down the Passage. Shortly after four the storm had broken in earnest and from that time until dark it raged in a wild fury of wind and rain that made it strenuous and uncomfortable for the crews and might have been dangerous to a yacht poorly equipped or not well handled. The wind



Wreck of Vencedor. Note Position of the Lead Keel About 100 Yards to Windward of Hull

blew from 60 to 80 miles in the puffs, and the rain cut painfully, but fortunately there was little variation from the Southeast, which not only enabled the yachts to continue on the course but gave them less sea than they would have had from any other quarter. Soon after dark the wind began hauling and went gradually around to the Southwest, continuing to blow pretty hard but clearing up the atmosphere and making navigation much easier.

The storm overtook *Amorita* just before she passed Skilligalee and hurried her on to Waugoshance Light at a record-breaking pace. She arrived at the entrance to the Straits of Mackinac shortly after five o'clock, at least three hours ahead of any previous record and with an average speed of 12 miles an hour to her credit. On heading to the Eastward, however, she had to go close-hauled against a sharp head-sea and it was pretty slow work under storm-canvas. She also had some difficulty in picking the course in the blinding rain, but even under these adverse conditions her margin was not quite exhausted and she crossed the finish line at 10:24:30 Sunday evening, establishing a new record of 31:14:30 for the course—ten minutes better than *Valmore's* run in 1910.

Valmore was next in line after *Amorita*, but Commodore Thompson's flagship did not fare as well as the big steel schooner. Her log states that they became apprehensive as to their distance from Skilligalee about 4:30 and after continuing for a time, and being unable to sight anything on account of the rain, they concluded to abandon the race and seek safety in less dangerous water. Accordingly they hauled close on the wind and worked over to the mainland, where they anchored under the lee about 6:30. They remained there until midnight and then stood on for the finish, arriving about daylight just behind the victorious Mavourneen and just in time to render them valuable assistance when the winner dragged ashore after anchoring in the poorly protected bight which serves as a harbor at Mackinac Island. There is some question whether *Valmore* was as close to Skilligalee at five o'clock as was thought, as that was allowing her only four hours for the 60-mile stretch from the Light-Vessel, but Commodore Thompson's desire to have the error on the safe side is worthy of commendation and



Vencedor, the Morning After the Wreck

Photos by Geo. R. Miles

emulation, particularly as it involved the sacrifice of the schooner prize and possibly the honor of winning the Mackinac Cup for the fourth consecutive time. Valmore passed the Light-Vessel one hour and twenty minutes behind Amorita, which meant that she was losing one minute every three miles. At that ratio, Valmore would have been one hour and forty minutes behind at Skilligalee and would have had the comfortable margin of nearly one hour's time with only 30 miles remaining. Whether the flagship could have saved her time on Mavourneen is more of a question. To have done this she would have had to finish at Mackinac by ten o'clock. She was due at Skilligalee about six and at the Shank a little before seven, which would have left her three hours in which to make the remaining 22 miles—an easy feat under favorable conditions but quite uncertain that strenuous Sunday evening.

Polaris and Shark were off Grand Traverse Bay when the storm broke and got the full benefit of both wind and sea. The two Herreshoff boats had been very companionable all the way down, with the yawl having a slight advantage after the wind freshened Sunday morning. In the blow, however, Polaris lost her bearings and was hove-to for several hours until things cleared up, arriving at Mackinac about seven Monday morning, but the big sloop managed to hold pretty well on the course and reached Mackinac about 1:30, being second boat to finish. Shark had no reef-points in her mainsail and was otherwise so poorly equipped for such strenuous sailing that her crew is deserving of no little credit for their plucky and skilful work.

Sailing in pairs had become the fashion among all the yachts except the two leaders, and following the Herreshoff pair came Vencedor, twice winner of the Cup, and the large yawl Juanita. They passed the Light-Vessel on even terms about 3:30—Juanita close aboard and Vencedor a mile to weather, in smoother water. Both had cut down to lower canvas at this time and were footing fast in the freshening wind. Upbound steamers were throwing the sharp seas over their noses in a smother of spray and the yachtsmen were glad they were running free. One steamer with a barge in tow was barely making headway, so fierce was the blow. It was learned later that they sheltered in Sleeping Bear

Bay that night and went ashore the next day before they could get out after the shift to the Northwest. About 4:00 Vencedor replaced her mainsail with a trysail and Juanita dropped her mainsail—continuing under jib, staysail and mizzen. About 5:30 Juanita's jib went out and when her hollow mizzenmast split, a few minutes later, Captain Andrews decided to work over to the Eastward, where he would have a choice of harbor at Charlevoix or Harbor Point if things got worse. The mizzen was reefed to save the spar as much strain as possible and the big yawl started across the mouth of Grand Traverse Bay, where both wind and sea had a long sweep. The rain shut everything out of view at times but in the lulls Vencedor was discovered about a mile to weather, under trysail and staysail, also standing across the bay. It was clearer as the boats approached the land and they soon were skirting the shore in smoother water and with the wind free—Vencedor still to weather, but their courses converging. When Fishermans Island came in sight Juanita was kept off to clear the shoal, but Vencedor held along on her inshore course. As Juanita approached the buoy on the outer end of the shoal it became apparent to her crew that Vencedor was heading across the shoal and in a perilous position, but she was nearly half a mile distant and there was no way of warning her, as she was directly to weather and could not have seen signals. Both boats held their parallel courses and just as Vencedor came in range over the buoy she stopped abruptly, and Juanita's crew knew that she had hit the shoal. But even before she struck the question of aiding her crew had been discussed and it was decided as much wiser for Juanita to continue on and get the Charlevoix Life-Saving crew rather than attempt a rescue herself. Under shortened canvas and with darkness at hand it would have been impossible for Juanita to have worked anywhere near the ill-fated Vencedor, and there was too much sea for any of the small boats, so the only thing to do was to get help as quickly as possible. Signals were burned by Juanita as she sped along in the fading light and promptly answered by the life-savers, and soon the bright lights of their approaching power boat gladdened the eyes of the anxious watchers aboard Juanita.

On a hail from Juanita the lifeboat hurried off to-



Photo by Geo. R. Mills

Salvaging the Wreck of Vencedor

ward Fishermans shoal but on the way they met Arapahoe, one of the ablest of the Chicago power cruisers, with the ten members of Vencedor's crew on board. Arapahoe had been following along across the bay and reached Vencedor within a few minutes after she struck. After rescuing the crew Arapahoe made several attempts to pull Vencedor from the shoal, but she had struck pretty hard and could not be moved. The yacht might have been saved the next morning, as she worked over the shoal into deep water, but there was delay in securing a tug and the gale from the Westward drove her upon the beach and speedily wrought the complete destruction of a boat which had long been one of Lake Michigan's most famous and consistent performers.

As soon as the lifeboat had chugged away into the night, Captain Andrews was forced to decide whether Juanita would continue in the race or get into harbor, but there was little need for hesitation. When she had flashed by the Light-Vessel at 3:30 that afternoon the megaphone had proclaimed the futility of further pursuit: "Amorita, 11:45; Valmore, 1:05; Polaris, 2:20; Shark, 2:30;" for this left no possible chance for the Cup, or even the yawl prize, so it was decided to seek rest and comfort at Charlevoix in preference to a bad night on the lake.

The next pair in the line of racers were the sloops Mavourneen and Illinois, and a pretty struggle they had of it as long as daylight lasted on Sunday. Mavourneen had about ten years' advantage of Illinois in age, and considerable in size, but the smaller craft stuck gamely to the speedy product of the new rule. They rounded Point Betsie close together just before the storm became severe, and were reported as passing Sleeping Bear on even terms at 4:30 and the Light-Vessel at 5:15. After that, in the strenuous run down the Passage, first one and then the other seems to have had a little advantage until darkness closed upon them. When the light came again it found Mavourneen well down the Straits on the way to victory while Illinois was seeking shelter under Beaver Island, many miles behind. Just how far Illinois got on the course, and how and where she spent the night, does not definitely appear from her log. It seems her boom was broken through gybing and after that she was unable to make any progress. She grounded at St. James Harbor, Beaver Island, Monday morning, but was subsequently released without damage and finished at Mackinac Island Tuesday morning. Even with a good finish Illinois could not by any chance have gained

the allowance of nearly an hour and a half which she was required to give the larger boat, but it was unfortunate that difficulties at the very end should have tarnished the brilliancy of her 300-mile dash.

Fate was kind to Mavourneen, for the hauling of the wind after dark not only kept her running free but it cleared the atmosphere to such an extent that she plainly picked the lights which had been so hard for the leaders to locate only a few hours before. As she turned to the Eastward at the Shank, the wind had hauled so far around that Mavourneen carried a spinnaker where Amorita and Shark had struggled close-hauled the evening before, and she romped across the finish line at three minutes before five o'clock Monday morning, two hours and forty-two minutes within her allowance of over nine hours from Amorita.

Prairie was the only one of the remaining three sloops to finish. She emerged from the blow on Sunday evening minus her mainsail and her charts, the entire roll having escaped the navigator's knee in a lurch and gone overboard. They held to the course as best they could, however, and finished at ten o'clock Monday morning—winner of second prize in the small-sloop division. Iroquois was not far behind Illinois and Mavourneen as they approached the Light-Vessel, but was then so hopelessly handicapped by time allowance that a harbor looked much more attractive than an all-night run in a gale of wind, so they anchored at South Manitou about five o'clock. The one remaining contestant, Capsicum—famous for her victories at the Jamestown Exposition—fell unaccountably far behind the other boats and made a harbor at Frankfort late Sunday afternoon. The showing of Capsicum was disappointing, for it was thought that with the fair wind all the way and a handicap of more than three hours over Mavourneen the smaller boat would have been a close contender for the Cup.

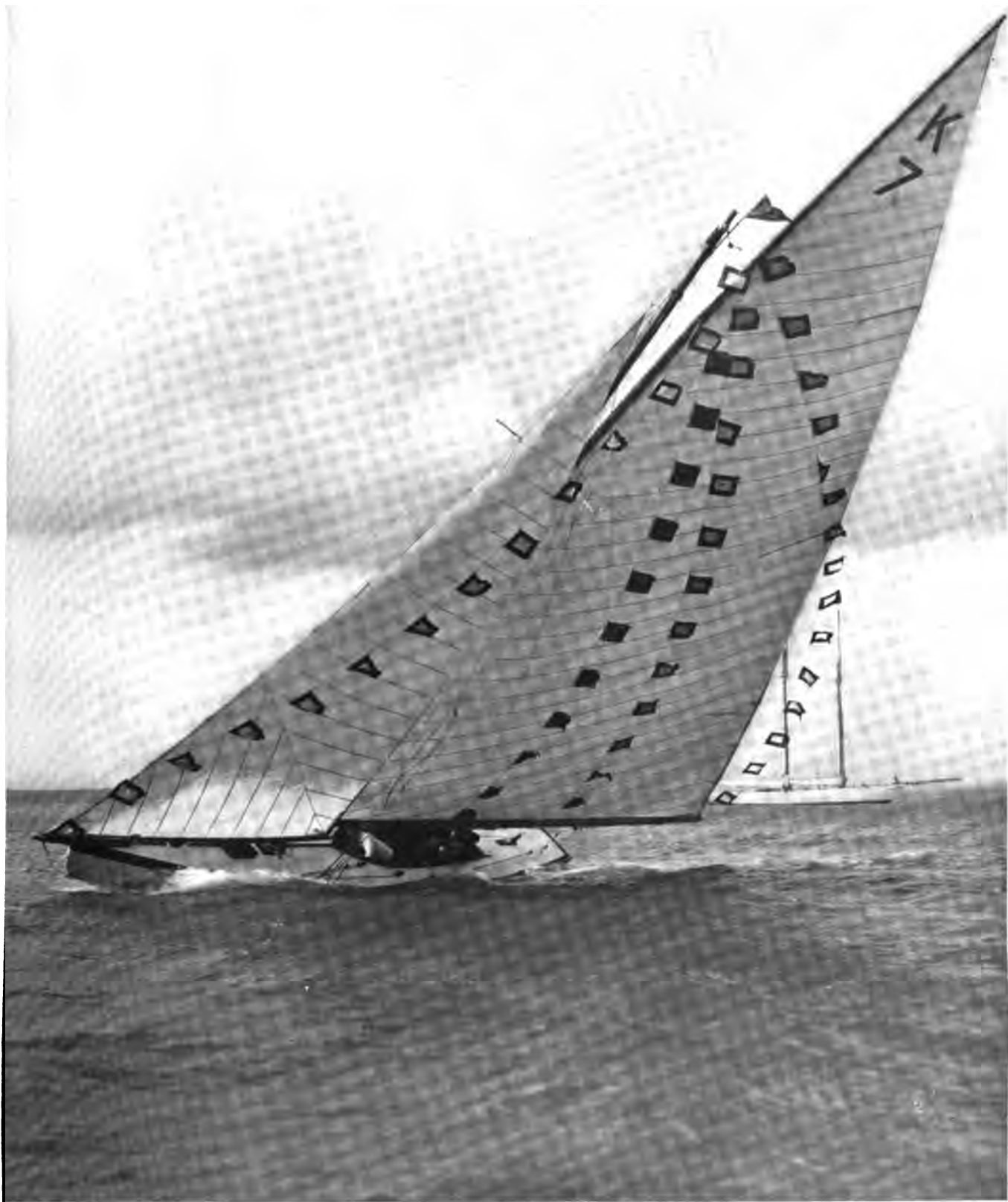
The change to the Universal Rating rule did not materially affect the result of the 1911 race and was not in any sense responsible for Mavourneen's victory. She would have won over Amorita by a comfortable margin under the old rule, but of course under that rule would have been in great danger from Illinois, had the latter not fozzled her finish. The hope that the new rule might benefit the race by giving the small boats an increased allowance fell far short of realization. In fact, the change was the other way—several of the small boats suffering a material reduction in the allowance they had received under the old rule.



Arapahoe Took Off Vencedor's Crew When She Ran Aground in the Mackinac Race



Octavia, Champion International Rating Class, Nineteen Metres. Designed by Mr. Alfred Mylne and Owned by Mr. W. P. Burton, Glasgow, Scotland



Ginevra, International Rating Class, Seven Metres. Designed by Mr. Alfred Mylne and Owned by Mr. F. A. Richards, Southampton, England. Winner of Both International Cups, International Regatta, Ryde, 1911

THE LOG OF TOTEM, 1911

T. H. & C. G. Hine

PART II—(Concluded)



THIS day, July 22d, was Heaven's own child, and what more appropriate than to have ladies with us? First there came Miss Quartermaster and her brother, Mr. Harry Lowder; with them arrived Miss La Blanc and a distant friend of hers, Mr. Watterman Penne, an editor of the *Steering Gear*.

Echo Bay looked as though every mercenary who owned a boat and could shake the dust of the city from his feet had

done so and, once we were clear of the headlands it was evident what had become of them. The Sound, as far as the eye could reach, was all a-flutter—"sail flecked," as the poetical Mr. Penne put it.

The Skipper laid a course for Oyster Bay and then turned the wheel over to Miss Quartermaster, who navigated the ship like any old salt. Then came Satan among us for, the remainder of the crew being idle, we straightway fell into a heated discussion of the cloud forms, which were strikingly beautiful. The party was about evenly divided in its opinion as to whether these were of the tumultuous or scurrilous order and, the debate becoming furious, had almost reached the stage of blows when we were suddenly becalmed by a stream of sweet music which flowed in an incessant torrent from the lips of Mr. Lowder.

The day, as before intimated, was ravishingly beautiful. The gorgeous white-cloud masses became long shimmering ribbons on the gently rippling surface of the Sound, the splashing and laughing of the waters as they parted to make way for Totem was as the music of many birds. A rain-squall the night before had washed the air clean, all was so pure and sparkling. As we drew near the Long Island shore the green was vivid and fresh and, rounding into Oyster Bay, the scene became one beyond the reach of adjectives.

Lunch, though purely material, is by no means the least interesting feature of the day. Miss Quartermaster topped the feast with a cake "like mother used to make."

The phonograph then filled in the time while Henry straightened out matters below. As we listened to its strains the sails of small boats were banking up on the surface of the bay even as the clouds in the heavens, and soon we were hailed and informed that a one-class race was about to start and that we were anchored on the

starting line, so the phonograph ceased its invitation to get into the game and Totem got out of the way. We do not know how the race came out or who won, but it was a great success from an esthetic point of view and met with our entire approval.

Certain members of the party having become fascinated with Budweiser, as it flowed from the phonograph's horn of plenty, the Skipper was persuaded to give it to us again and again. We had it before dinner and after dinner, on deck and in the cabin, with steel points and with wood points, and no doubt would have had it backwards if the phonograph could have been so persuaded.

July 23d.—This would have been a very good day, indeed, so far as the weather goes, had it not been immediately preceded by yesterday, but with the memory of that fresh in mind we were inclined to be a bit critical.

It is the Commodore and the Quartermaster to-day. The latter came aboard first, and with him came a pair of binoculars that magnify even as does a newspaper man; now every little detail has a meaning all its own. The Skipper thought the Quartermaster a nice man, and had no hesitation in telling him so.

We took a run up to Riverside and lunched on fresh lobsters that were scooped, all gesticulating in a most hurried manner, from a car that floats beside the yacht



Miss Quartermaster and the Skipper

club landing. The chef has a way of serving them up that adds much to the glory and renown of the club.

To-morrow morning it will rain as though some one had kicked a great hole in Jupiter's sieve, and somewhere between Totem and the shore landing the crease in our trousers will be lost, but that is to-morrow, and we will not worry about it just yet.

July 30th.—The Reverend B. J. Wollaper was the event of the day; otherwise it was that quiet, that one could hear the mast step. The only air stirring was furnished by the phonograph.

We found Atala in Manhasset Bay, and later in the day, when it seemed as though her friend Mr. Boreas was sleeping his last sleep, she consented that we escort her across the Sound.

It was just a nice, peaceful day, and with the Reverend Mr. Wollaper on board reminded us strongly of the Sundays of long ago when the visiting clergyman was always entertained at our home.

August 6th.—The Contractor, the Commodore and Quartermaster were the events of the day; the latter are Wall Street sharps and the antics of the present market furnished them with abundant conversational material. The Quartermaster is an expert on railroads and railroad statistics, and is so full of figures that the ordinary citizen gets dizzy when they begin to flow, consequently he was much interested in the following facts concerning the Erie which the Commodore was able to furnish.

Personally we have no liking for the Erie and would rather knock it than not, but at the same time we believe in evenhanded justice and will try and quote the Commodore's very words:

George Gould was one day watching an Irishman testing the wheels of his private car, and finally asked what he thought of them. "Sure, they're bum," came the prompt response. "Why, how so?" says George. "They're no good! no good!" says Pat. "Well, that is not very complimentary. What do you think of the car?" "Ah! the whole thing is on the bum." "I guess you do not know who you are talking to; I am George Gould." This from the magnate. "Oh! I know yez," answered Pat, "and I knew your father before you. A fine president he was, and he'll be president again one of these days." "What! Don't you know my father is dead?" exclaimed the son. "Ah! sure I do; but the whole dom road will be going to Hell shortly," came the response.

When the noon hour arrived we found ourselves in Indian Harbor patiently waiting for the Commodore to suggest a shore lunch at the clubhouse, and this being accomplished we returned to the boat and Echo Bay; and the morning and the evening were the tenth day.

August 13th.—This time it was much like the rich man's feast, or wedding, or whatever it was, for they all with one accord began to make excuses, and as a result Totem carries a strictly family party; this of course includes the Summit Contractor, who was formerly spanked by the same slipper that tended the rest of us.

The Fates, in the person of the Skipper, decreed that we should cross to Hempstead Harbor and explore it to the head. Thus, in due time, we dropped anchor just outside the "Bar" and in Totem Jr. began the navigation of the inner waters. The tide was running flood and consequently we had no fear of the flats which on a former occasion interfered seriously with our thirst for knowledge.

At the very end of everything lies Roslyn, and here



The Crew at Their Stations

we came on an old mill that required investigation. On the village street we met an ancient named Thorne, whose father sold it some sixty or seventy years ago to the progenitor of the present owner, Hicks. He told how, when he was a toddler in skirts the shaft caught his clothes and proceeded to wind him up. He broke a couple of arms and a pair of legs, but was not seriously damaged. His limp and his wooden leg came from a slip on the ice which occurred some years later.

This has always been a flour and feed mill and to-day is still grinding feed. Occasionally his father would buy a few bags of whole peppers and grind them for the neighboring country stores, after which operation he must needs grind hog feed to clean the stones.

When the mill was built is not known to the present generation, but it was standing during the Revolution, as the then miller, Willis or Onderdonk (it is not clear which) was compelled to grind feed for the British during their occupation of New York. And that is all the history we came by.

August 19th.—The last week-end expedition of the Summer: We have with us on this occasion that certain Commodore who is Commodore of all Biscayne and who, to distinguish from that other Commodore who has been Commodore time upon time—lo! these many years—will hereafter be known as the Admiral. The Admiral in his youth spent his nights on Staten Island and his days on New York Bay and the adjacent waters thereof, such as the Atlantic Ocean, Staten Island Sound, etc. Many are the alongshore tales he tells of smugglers, yacht races and all the adventures that a young water-dog would be apt to fall in with.

The Admiral designed Totem, and as this is the first time he has seen her there is much to interest him.

The Admiral has a friend, one Matheson, whose Summer home crowns the Western heights of Lloyds Neck. It is such a home as very few of us hope to attain this side of Heaven. The house is set within the earthworks of "West Fort," a fortification thrown up by the English during the Revolution and occupied by a company of Hessians. Something like a peck of coins, including an occasional gold piece, have been picked up here, and somewhere on the place is a well in which the foreign hirelings dumped their cannon when they left. This they arched over, filled in and sodded, and its loca-

tion has never been discovered. There was at one time a colony of Jesuits here, but the only relic of their reign is a well 110 feet deep which is still in use and furnishing good water. It is pleasant to know that the old monks cared enough for water to labor so earnestly in its attainment as must have been the case here.

The day was one of those which in the olden time was set apart for the especial use of kings and emperors, so perfect was it. The magnificent spread of blue above us was decorated in fantastic manner by cloud forms which took on strange shapes as of men or animals, or the fishes of the sea. There were many signs and portents among them, but all of a beautiful day. Through this gorgeousness we returned across the Sound whence we came and came to rest as many times formerly.

August 24th.—The Admiral, the Commodore and the King of Clarke Island composed the crew selected by the Skipper for the annual cruise to the Eastward. The Skipper's first thought was that he had so much talent on board that Totem was like to settle by the stern, but he soon found out his mistake and finally concluded that his four-cylinder gas engine below was no match whatever for the three-cylinder, disconnected gas engine on deck. However, they were useful in holding down the chairs when the wind blew and in saving the grub from spoiling.

The King is an old friend and has figured before as he who does the Gabriel act after the glim is doused, when he is as the mutterings of deep thunder.

At 10:30 the mooring line was cast off and Totem went forth to show all the world her new coat of black paint. Even the sun could not stand such a lovely sight, and quickly drew a veil of cloud before his face, while a fresh Easterly wind began to frisk with Miss Totem in a manner wholly unbecoming a gentleman. There were also frequent small showers, but what they had to do with the situation is not explained.

The Admiral unbends occasionally, and in one such moment he told the following little incident of his early life. When he was once reading the Scripture to an old salt, he came upon the following passage:

"And Solomon had seven hundred wives and three hundred concubines."

"Dear, dear," gasped the old salt, "what privileges them early Christians had, to be sure, sir."

At 4:50 p. m. Totem reached the Thimbles, a distance of fifty-eight miles, almost ten miles an hour which, considering the treatment of the ungentlemanly East wind, was regarded as satisfactory.

The semi—but no, we must refuse to mention it, as it really seems to be a sore spot. The Commodore proph-



The Old Boat at East Harbor. Everybody Takes Her Picture

esied a Northwest wind and clear weather for the morning. (Please keep this in mind to-morrow.)

August 25th.—The night was showery and wind Northeast when we turned out, with a light rain to emphasize the prophet's ability. Totem loafed at her anchor until after lunch in the hope that the day would become more propitious, but no change came and, weather or no, a start was made at 12:45, and by the help of a fair tide and in spite of rough seas, Stonington was reached by 5:40, a distance of forty-eight miles.

August 26th.—All night long a steady rain pounded on the cabin roof, and this morning we were still being pelted, but Stonington's oft-visited streets held no charm to win us away from Mr. Neptune, even when the weather soured on us, and by ten o'clock we were on the high seas again. As Watch Hill rushed astern, 10:25, it was decided to steer for the new harbor at Block Island. There was some sea running and this, joining hands with a rascally old ground swell, made Totem roll so that it was a difficult matter to steer our E. by S. course, and when Block Island loomed through the haze we were a mile too far to the Southward. In due course we rounded the end of the breakwater and found ourselves in one of the prettiest little harbors on this coast.

A ride to the South Lighthouse was the first thing in order. This is situated on a bluff about the same height and partly composed of the same gray clay as the Chilmark Cliffs on the South shore of Marthas Vineyard. The view from here looking West is very fine.

The drive back followed the East side of the island to the "Old Harbor." This with its fishing boats and seashore clutter is a wonderfully picturesque spot. The Admiral in his youthful wanderings turned the light of his countenance on Block Island when the peculiar style of craft formerly local to this place was in vogue. These were deep little vessels with a bottom about the shape of the letter V. They were clinker built, keel, double-ender boats; 20 to 30 feet over all, with a breadth of beam fully one-third of the length, and drew from 2½ to 3 feet. They carried pole-masts without rigging, and usually with loose-footed, gaff sails. The masts were not stepped through the thwart, but were held in place by whaleboat mast hasps, so that they could be quickly unshipped in a heavy sea. They were magnificent boats afloat on the open sea, but not exactly the thing to run up on a beach; in those days Block Island had no harbor



New London Light



Off the Rudder Station at Oak Bluffs

whatever and in order to escape heavy seas small boats must be hauled above high water. The fishermen invented a sort of slip not unlike those which are used by the New York ferryboats; these consisted of two lines of hickory poles driven in the sand just far enough apart for the boat to run in between. The craft being floated in and the cobblestone ballast thrown overboard, oxen were hitched on, and with rollers beneath, they were "snaked" high and dry on the beach, being held upright by the hickory piling. Naturally the Admiral desired to find one of his old friends of fifty years ago, and after much inquiry the ghost of one was located, buried in the sand, on the East side of the island near the Old Harbor. But she lay too deep to afford any idea of her construction.

We had light showers all day and have about concluded that the sun does not reach as far East as this, as we have not had a glimpse of him since New Rochelle was lost to sight. The Skipper made a fish chowder for supper which was politely eaten in silence, there being no words that could fit the situation and also be safely used within the confines of the cabin, for the Skipper is still fairly husky.

August 27th.—The variety last night was thunder; we had the same old showers, but the thunder was something new, and when that stopped brawling the fog siren at the South Light took up the refrain. The showers and fog remained with us all day; in fact, there was every kind of weather but good weather—however, there was a plenty of other kinds.

August 28th.—Heavy rain from five to eleven o'clock this morning, after which the sun made his appearance; but the Lord High Admiral did not look on this as a clear up, but rather as a bluff, and the Skipper was compelled to put another lashing on his patience. The siren of the South Light kept calling all day long and the wind was strong Southwest. No boat came from New London or Greenport, and the time wore slowly on. Late in the afternoon we went over to an old wharf on the West side of this New Harbor and filled water tanks from a large spring of fine, clear water.

August 29th.—The Southwest wind continued heavy during the night and was hard at it this morning when we turned out, but had it not been for some unnecessary fog which was hanging around these parts Totem would have made a start for the Vineyard.

In order to dispose of certain time which needed attention we drove to the life-saving station at the North end of the island, passing on the way some thrifty-looking farms with their well-kept buildings. About a mile from the North point we came on a gang of men hauling

a large boulder from the ocean, and by dint of much questioning learned that it was to be set on high as a monument to commemorate the settlement of Block Island on September 2, 1661, by the sixteen men who then landed at this spot with intent to make the island their home.

Some time in the early afternoon a sharp-eyed member of the crew discovered that the mainland was visible—quite a new experience for us. This set the precipitate Skipper in motion, and he set Totem in motion, and soon we were outside and headed N. by E. for Point Judith. The less hasty members of the party demurred at this sudden move and hinted that it was foolish to leave a good harbor at 3 p. m. with heavy squalls making up in the Northwest, but the Skipper was all for doing something, and besides he had seen Totem turn up her nose at large squalls before and the others had not. The squalls met us more than halfway and Totem finally changed her course to N. by W., which carried us up under the land where smooth water awaited us. At 6 p. m. we dropped anchor off Newport, having spent three hours over the 25-mile run. The weather partially cleared, but we had a hard, cold sunset, while a North wind cut everything but our acquaintance.

August 30th.—Just imagine the Skipper's lovely flow of adjectives and punctuation marks when he turned out this morning to find rain and a Northeast wind. Lord Chesterfield's letters to his son could hardly have been more instructive or fluent than the few well-chosen words with which the Skipper opened the day. However, his mind was made up for the Vineyard, and we got away by 7:30.

Totem plugged along into the head-seas without thinking much about it until we reached Penikese Island at the entrance to Buzzards Bay; here it really was rough for half an hour. We kept on to Woods Hole when a fair tide set us into Vineyard Sound in the usual hasty way the tide has here, and at 1:30 we were anchored back of the breakwater at Vineyard Haven. Distance, fifty miles. All day it rained, but the wind went down with the sun and our hopes for the morrow went up in corresponding degree.

August 31st.—To-day it is a strong Easterly gale with heavy rain, and those hopes of ours were the most bedraggled things you ever did see. The Skipper somehow got the impression that there were other people who



Waiting for a Chance to Round the Cape



Fish Houses on No Man's Land

were quite as tired of this rain as himself, this being the eighth consecutive day without variation or shadow of turning; however, as misery loves company, he may have just imagined such to be the case.

The Commodore fearing lest New York would stop running if he remained away longer, decided that he must get back immediately, and so elaborate preparations were made to transfer him to the shore dry and in an amiable frame of mind. This was successfully accomplished, and when last seen he was rolling out of Vineyard Haven Harbor on the new steamer Sankaty, which would be a great success if an unusual ability to roll were any advantage in a passenger steamer. It rained all day; in fact, it rained so long and so hard and so fast and so thoroughly that by night the harbor was quite full of water.

September 1st.—This is notable as the day on which it cleared up at noon and the wind went Southwest.

September 2d.—The Admiral, fearing lest Staten Island would upset should he longer deny it the privilege of his presence, thought it about time to turn his prow toward the West, and Totem did her share by depositing him on the wharf at Oak Bluffs.

September 4th.—Labor Day. As there were to be fireworks at Oak Bluffs in the evening Totem took us over during the afternoon and anchored in the harbor. The band began its share of the noise at eight o'clock and shortly thereafter the fireworks began sparking. They were good fireworks, but when the rockets began to come our way and a stick finally fell on the cabin roof, it seemed no place for us, and Totem retired to Vineyard Haven.

September 5th.—At a recent period in the Skipper's career he read a novel entitled "No Man's Land," which had for its scene of action the small island of that name which lies six and one-half miles South of Gay Head. Hence it was natural for him to think of that as the object of an excursion.

Once on a time when he was a small boy the Skipper made this very trip under circumstances which made a lasting impression. It was by schooner, and the trip of twenty-six miles took some fourteen hours to accomplish and the schooner rolled and pitched and upset his little insides until his breakfast was even as Jonah after the space of three days. This time it was different. Totem made the trip there in two hours and a half, and the trip

back in two hours and twenty minutes, and that allowed time enough for some exploration.

Mr. Davis, the Lord of the Manor, was absent and we were compelled to act as our own guides. Aside from the Davis farmhouse the only buildings on the island so far as we could see were the fish huts along the shore. There was one wreck of a dwelling which struck us as rather singular. It stood open to the weather where parts of two sides had fallen down; inside could be seen a mahogany bedstead and bureau, a sewing machine and several chairs. None of these articles looked as though they had been used for years, but as there was no one of whom to ask questions, the mystery still remains deep, dark and unfathomable.

Quail, sand pipers and yellow legs were in some abundance, as we saw them frequently, and we are told that the black duck is common. The Davis flock of sheep, some five hundred strong, looked as though life on No Man's Land was free from care. The fish huts were too new to be picturesque.

Any one landing here should use a dory on account of the undertow which is quite noticeable, even on the lee side of the island. Our experience with the power dinghy enforced this lesson on us with a vengeance. There was no place to tie her and she could not be hauled out on the beach for fear the shaft might be bent, and the small boat kept some one busy a large part of the time. There is a bight on the North side where a landing can be made when the wind is anywhere from East around to Southwest.

September 6th.—We had a heavy rain and Southerly wind all the morning, and

September 7th, 8th and 9th.—We had an Easterly wind and showers. It was different without adding much to the variety. One afternoon the dinghy took us for a little run up the Lagoon, at the head of which and near Oak Bluffs pumping station, we found an unusual variety of wild flowers.

September 10th.—We were provided with two hours of fog about midday, but aside from this the weather was fairly satisfactory. Of course such an invitation was not to be neglected, and Totem availed herself of the opportunity to take us to Katama Bay. Here we climbed one of the hills on Chappaquidick Island and had an extended view of most of the island and of much of its surrounding waters. During our explorations we



What Mermaid Shed These?



Fresh Water Pond, Nashawena

came on a mysterious ditch some 300 feet long by 30 feet in width and 3 feet in depth. Its intent appears to have been to connect a certain hill with salt water, but this was never accomplished, as it stopped about 100 feet from the shore. What it hoped to do for the hill or the shore, or both, is not evident, unless the sea, like Mahomet, thought it best to come to the mountain.

On our way back we fell in with a yawl as we were coming out of Edgartown Harbor, and the fresh wind enabled her to hit up a pace which kept us side by side for about three miles, but finally the wind dropped and the gasoline had the best of it.

September 12th.—Since the beginning of the world it was foreordained that Totem should spend to-day in and around Hadleys Harbor and Nonamesset Island. We had head tides both ways in Woods Hole, and the wind was squally until about 3 p. m. When it came Northwest and gave us a look like a pleasant day, we actually thought it had at last cleared up, but knew better when we returned to Vineyard Haven. Here were eight tugs tied up at the steamboat wharf, and tugboat captains are considered about the smartest navigators along the coast; consequently our hopes of a permanent improvement in the weather were blighted past all recovery.

Talking of tugboat captains reminds us that the Skipper picked up some rather interesting items while swapping yarns with some of them this trip, which goes to show that even life on the ocean wave has its ups and downs:

The tugboat captain is, it seems, always between the Devil and the deep sea, the Devil being ably represented by the owner and the deep sea by the insurance company. The latter will not insure any tow which is in charge of a captain that has lost a certain number of barges. But the owner, when he has a string of barges that have about finished their career of usefulness, insures them well and then sends the outfit off, trusting that Divine Providence will come to his aid and, believing with the great Commoner, that it is also well to keep one's powder dry, the owner assists nature to the best of his ability by adding a rotten hawser to the outfit.

Under such circumstances the captain fails to bring tears of joy to the eyes of his employer when he turns up at the end of the trip with his tow intact, and, if he does not, the insurer says, "Nix for you, here-

after," so what is the poor man to do? Even the mildest-mannered man that ever cut a throat or scuttled ship would be in a quandary under such circumstances.

Between his two friends the captain is of necessity cautious in the extreme, and this is where the owner gets it in the bank account. This Summer there lay in Vineyard Haven Harbor for the space of ten days a tug and three coal-laden barges, the aggregate value of which was probably \$200,000. According to the captain two of the barges were "rotten old boxes," while one of his hawsers had been spliced three times and had long since passed the days of its strength. But one of the hard and fast rules is that a cable must last one year; if it proves defective and gives out too soon, that is the fault of the cable, not the rule. As a result of the unseaworthy condition the interest on \$200,000 and ten days' wages were thrown away, as the captain said he'd be ——— something or other, if he took any chances with such an outfit in rough weather.

September 14th.—It was Woods Hole to-day for fruit, but the little fruit store there was closed, so we compromised on a walk through the beautiful Fay rose garden where there are many roses blooming, even at this time of year; visitors are welcome here as long as they behave themselves.

September 17th.—The weather cleared up in the most approved fashion last night. Wind went around the right way, clear sunset and deep pink afterglow. All the signs were propitious and every one thought we were to have fine weather to-day, but it was not to be. Last night about ten o'clock the fog-horns began to send out their warning notes, and all night long they continued to buffet the air. This morning it is still thick and the wind is brisk Northeast. Fair weather appears to have gone a long way off.

September 18th.—Northeast gale to-day and so rough at the head of the harbor that the seven tugs tied up there had to go to Woods Hole for shelter. The steamer Sankaty from New Bedford for Nantucket got as far as Cross Rip Lightship and then turned back to Vineyard Haven, where she tied up to the steamboat wharf. Three catboats chafed off their moorings and went ashore on the beach.

The storm afforded such an excellent illustration of the great benefit of a harbor of refuge that we cannot help putting in another word for the Lagoon and its



The Beach on Nashawena

possibilities for good to this portion of the island. This would make Vineyard Haven a safe harbor in any wind that blows, and the comparatively small expense would be more than made good by the greater number of cruising yachts and power boats which would be induced to tarry a while when it is safe to do so.

About noon the sun broke through the clouds, and by sundown the wind had dropped a little.

September 19th.—The gale continued, but moderated towards night.

September 20th.—The day started out with a fog, but this burned away by eight o'clock. There were sixteen ocean-going tugs in the harbor this morning with their tows; also a goodly number of schooners. All was activity as soon as the fog cleared and the wind came Northwest, and by ten o'clock, when Totem started out of the harbor, only two schooners remained at anchor. The other vessels formed a long line to the Eastward from East Chop to the horizon.

This is the first clear, pleasant day we have had since Totem left New Rochelle just four weeks ago.

We traveled down the Sound to Quicks Hole and anchored in the bight on the South side of the Hole, bent on exploring the North end of Nashawena Island. About this time that universal friend of mankind, Mr. Inner Man, began to throw out suggestions to the effect that it was his turn, but after he was placated with cold, boiled lobster and Waldorf salad we were allowed to go on shore. We landed on a hard, sandy beach which continued South for a half mile, when we came on a cobblestone beach without a grain of sand in evidence.

On the Northeast corner of Nashawena is a freshwater pond, perhaps a quarter of a mile across, the surface of which is several feet above the level of the Sound at low tide. A rocky ridge separates it from the salt water. Following this ridge around to the Southeast side of the island we climbed the high bluffs which enabled us to look across to Gay Head, and afford a fine view up and down the Sound. The walk over the stony beach had been so hard that we purposed walking around the pond, but were soon turned back by the hordes of mosquitoes which attacked the party as soon as we left the beach. The Skipper was raised in New Jersey and has spent some years in Florida, but he has never seen anything in the mosquito line to equal the North end of



Lobster Palaces on Menemsha Creek

Nashawena. Moral—do not anchor here of a calm night.

September 21st.—This was another fine day, and as the tide served both ways, we went to Menemsha Creek. There is abundance of water between the jetties and, turning sharp to the left after passing through, we came into a small harbor which has recently been dredged. This, however, was too close quarters for Totem, and as soon as the tide slacked up a bit she went outside for an anchorage.

This is a cosy place for small craft that can turn around in their own length, and is a much frequented harbor for fishing boats and lobstermen.

After lunch we went ashore to look around, and made the acquaintance of Mr. Everett Poole, who is king pin among the lobstermen here. He kindly posed among his lobster gear and made a good impression both on the Skipper and on the camera.

September 22d.—Rain all the morning and close and hot all the afternoon.

September 23d, 24th and 25th.—Showers and fog were our portion for three days, and we could only make rainy-day excursions to the Bluffs for such amusement as the Japanese and other Summer traders offer at the end of the season, when a dollar appears much larger in their eyes than in July and August, and when, rather than repack and carry their goods away, they will consider almost any offer.

September 27th.—Going-home time has arrived and it looks as though the weather man was trying to make us sorry, for this morning is as fine a morning as any that has been offered for a month. Possibly the Quartermaster, who arrived from New York yesterday, brought it with him; he is usually shedding smiles on his friends.

By 7:15 all hands, including the aforesaid Quartermaster, John Washburn and George Hillman, were on board, and after the dinghy had been hoisted aboard we cast off the mooring for the last time and started out of Vineyard Haven Harbor at 7:30. For an hour we had a fair tide, and thereafter all day the tide wronged us. Made the Vineyard Sound Lightship at 10:15 and ran close alongside to throw some late papers aboard. About noon it clouded up and the wind hauled to the South and began to breeze.

Passed Point Judith at 1 p. m. The wind was now



Menemsha Creek

Southwest and blowing fresh, and from here to Watch Hill Totem jumped and rolled as though she enjoyed it. It took two hours and forty-five minutes to make this twenty-one miles. Found a strong head tide in Fishers Island Sound and a heavy sea in the open space between Fishers Island and New London. Anchored back of Fort Trumbull at 5:30 and expected to have a smooth berth to lie in, but not so. The swell from the Sound came up the river and rolled Totem so that, while Henry managed to cook the dinner, we could hardly keep the dishes on the table, and we had a sort of hand-to-mouth meal, one hand holding dishes while the other searched out the victuals.

Turned in at 8:30 to get rid of the constant rolling, which got on our nerves.

September 28th.—The barometer dropped three-tenths yesterday, and when we came into New London last night it looked very stormy, but some time during the night the weather clerk had a change of heart, and when we turned out at 5:30 there wasn't a cloud to be seen and the wind was light and about Northwest.

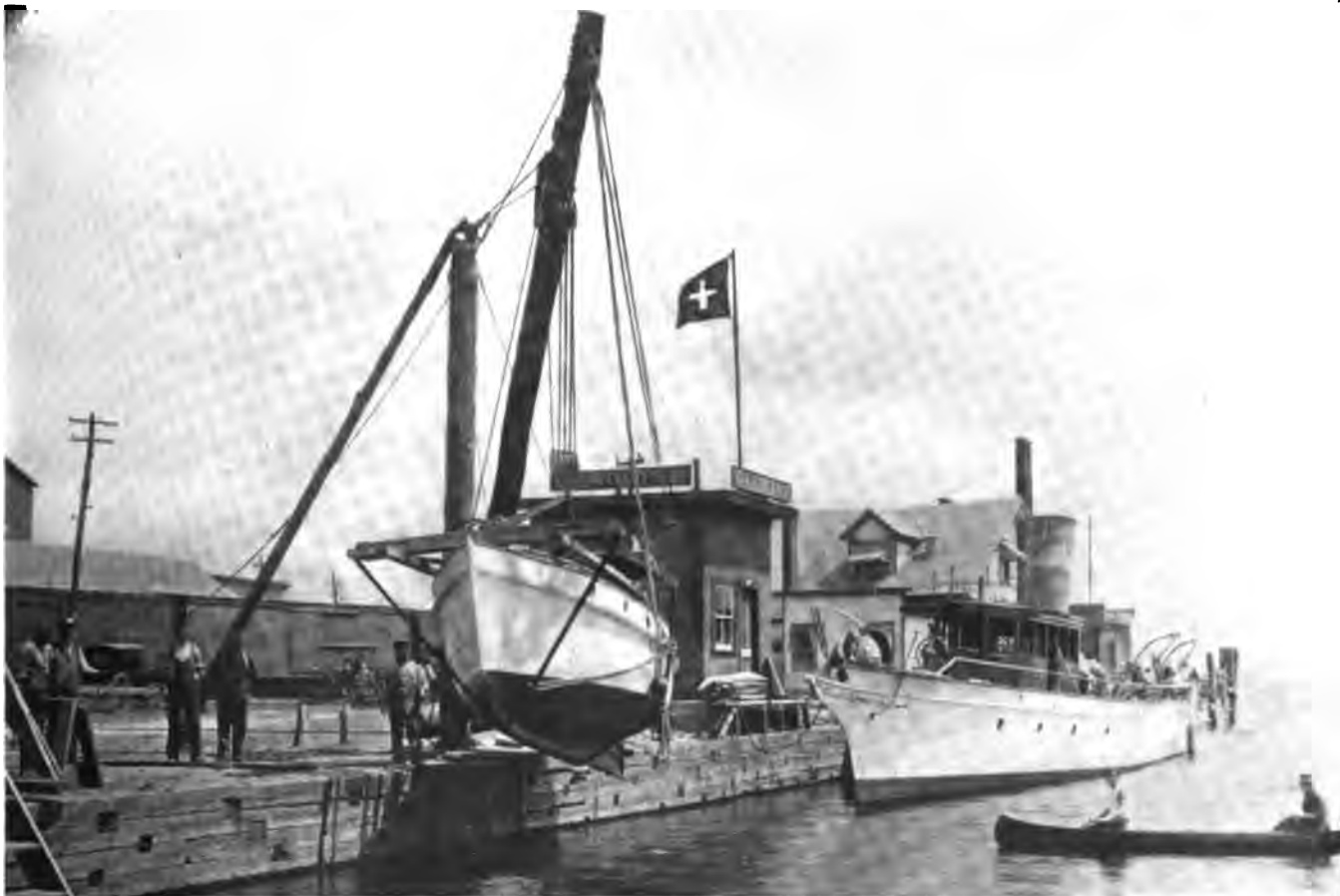
Later on it breezed up quite strong and Totem hugged the Connecticut shore to make a lee. Were off New Haven at one o'clock.

After Mr. Clinton Dey adjusted the engine last Spring it ran for ten weeks without being touched, and when it did begin to cut up a bit to-day the trouble was soon located in the commutator, one of the points of which had worn. Between the engine and Henry the Summer has been an easy one. Henry's strength, good nature and abundant willingness to work, combined with his modesty and desire to do the Skipper's way rather than

his own, is one of the most remarkable amalgamations that we have seen in many a day. At the beginning he had a lot to learn, but he has learned most of it.

Ran into Indian Harbor about half-past five and anchored for the night, having covered eighty-seven and one-half miles since morning. In this connection it may be interesting to quote Captain Arthur H. Clark, who in the preface to his "The Clipper Ship Era," tells us when it is proper to use the term knot and when not. Captain Clark says: "The word knot is now frequently used to express long distances at sea. This is an error, as the term knot should be used only to denote an hourly rate of speed; for instance, to say that a vessel is making nine knots means that she is going through the water at the rate of nine knots an hour, but it would be incorrect to say she made thirty-six knots in four hours; here the term miles should be used, meaning sea miles or knots. The term knots is simply a unit of speed, and is derived from the knots marked on the old-fashioned log-line and graduated to a twenty-eight second log-glass which was usually kept in the binnacle."

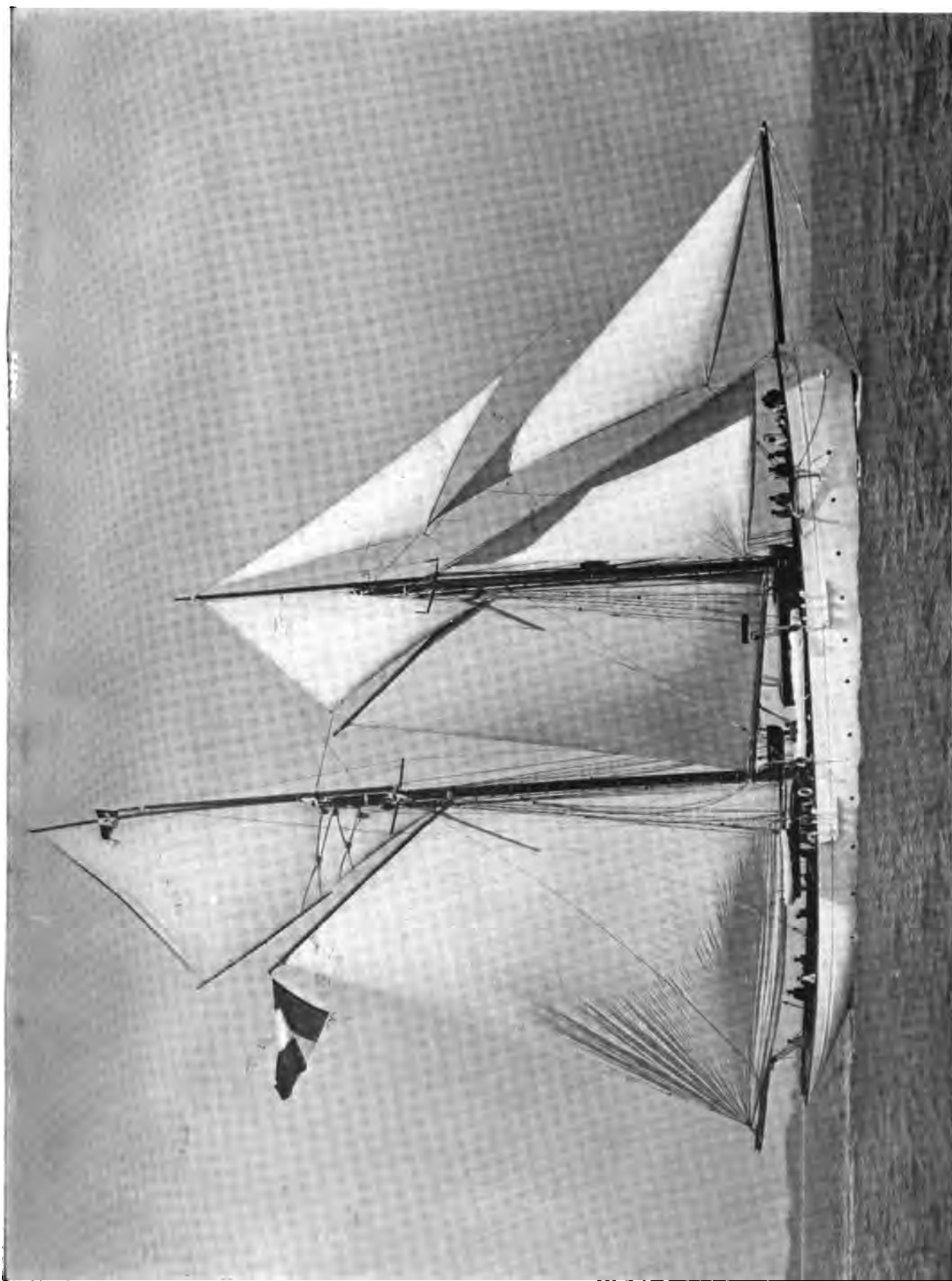
September 29th.—Turned out this morning to find that the rain was being driven in by a Southerly wind and, Indian Harbor being a poor place to lie under such conditions, we were soon underway and headed for Execution Rocks. About here a fog-bank swooped down on us and Totem made for Manhasset Harbor, where we lay about three hours in order to take a fair tide through the Gate and down the East River, and in due course the anchor was feeling at home in the muddy bottom off the Stapleton Y. C., and the Summer of 1911 was a matter of history as herein set forth.



Rudder Station at Plattsburg, N. Y.



Norada, International Rating Class, Nineteen Metres. Designed by Mr. C. E. Nicholson and Owned by Mr. Fred. Milburn, Portsmouth, England. Winner of Both International Cups, International Regatta, Ryde, 1911



Auxillary Schooner Etoile-Filante, 102 Ft. Over All, Six-Cylinder 9x12 Parsons Engine. Designed by Mr. H. M. White and Built by White Bros. Southampton England, for Dr. A. Lulling, of Southampton England



View of Dixie IV Taken While Tuning Up for the Last International. A Challenge has been Received from England for a Race This Year
Photo by Rosenthal

HOW TO BUILD A 9-FOOT SKIFF, POLLYWOG

Fred. W. Goeller, Jr.

WE have a 15-foot catboat Scud II (Sea-Gull model) and the 10-foot skiff which we had was stolen, so after getting tired of using some one else's—and sometimes not getting it to use—we decided to put up something special. It had to be special, as we wanted a boat easy to tow and one that could be pulled aboard when the air was light and we were bucking a strong tide, which happens quite often in our locality.

It was decided that a 10-foot boat was too large, as we had already built one of this length that was owned at our yacht club and which we had tried out.

After we had decided on a 9 by 4-foot boat, the naval architect was told to see what he could do. The result is shown in the accompanying photos and plans.

Dimensions are given for every part so that the boat may be gotten out in short order.

For the stem we used a 2½-inch piece of oak 20 inches long—some of this is cut off after the sides are on—and 5 inches wide. After laying out the face and after side of the stem and cutting them out, the rabbet line was marked. This is an inch back from, and parallel with, the face of the stem.

A center line was then marked and a line one inch away was drawn on either side of it. The sides were then cut down to this line to just back of where the rabbet line came. The rabbet line was again marked and a line drawn on either side of the center line 3/16 inch, making the face of the stem show 3/8 inch wide when finished. The sides of the stem were then beveled off from the rabbet line to the 3/8-inch mark on the face of the stem.

With a 5/16-inch piece as a template cut in the rabbet, the face of the template should carry out with the side of the stem.

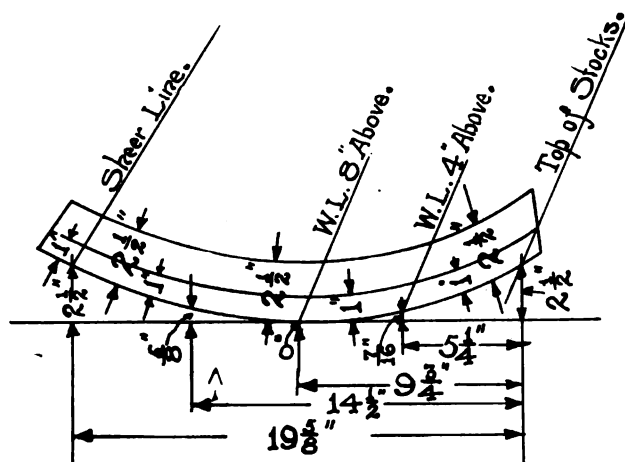
The reason then becomes apparent why the after part of the stem was left wider. It affords a landing for the planking over an inch wide, while if the stem was sided 2 inches all the way the landing would only be about 3/8 inch.

The two moulds and the sternboard are then gotten out. Most anything will do for the former. We used some 3/4-inch cedar scrap.

The sternboard is 7/8 inch thick, as there is no nailing strip and the planking is screwed directly into it. The bevels can be gotten pretty closely from the plans,



Pollywog, with 1,090 Lb. on Board



Detail of Stem

although a little doctoring will very likely have to be done when the planks are being put on.

When all this has been done, a horse long enough to go the length of the bottom of the boat should be made and set up, as it is quite important to have something rigid on which to set the stem, moulds and sternboard.

The stem is set onto the stocks and held as shown on the plan at the bottom and cross braced to the ceiling on top.

The moulds have shims under them to keep the bottom at the proper height and the sternboard has two pieces screwed to it on the inside face and go down either side and are fastened to the stocks. A heavy batten is then bent around the tops of the moulds and fastened at the stem and stern.

The widths of the planks are then marked on the stem, moulds and sternboard. The planks show $2\frac{3}{4}$ inches wide on the stem and sternboard, so in laying them off start from the top. The first space is 2 inches—there is no lap to the top of sheer-strake and it finishes the same width as the other planks—then $2\frac{3}{4}$ inches three times. This will take care of all planks except

the garboard, which is wider forward and aft, and finishes up to the mark.

On No. 1 mould the planks finish $3\frac{1}{4}$ inches wide, so the first dimension is $2\frac{1}{2}$ inches and the rest $3\frac{1}{4}$ inches. On No. 2 mould the planks finish $3\frac{1}{8}$ inches and the first mark is $2\frac{3}{8}$ inches down.

These marks are drawn out on the side of the moulds and sternboard and on the side of the stem, and they are the marks to which the top edge of the plank finishes to.

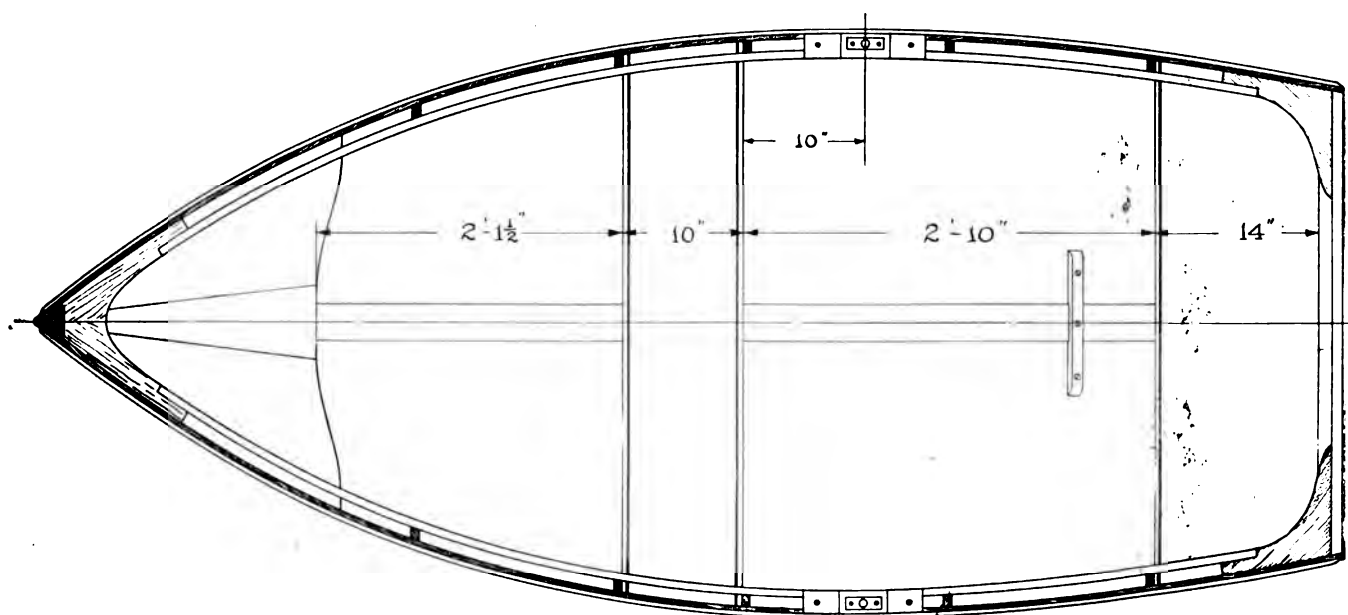
We are now ready to plank up the sides. The stuff used for this is dressed to $\frac{3}{8}$ inch—and get six or seven boards, if wide material is to be used, as two planks can be worked out of a wide board. Otherwise get ten boards if they are narrow, or eight cedar and two oak ones if an oak sheer-strake is to be put on.

Take a wide board and bend it around the bottom edge of the moulds and mark the top and bottom at the stem, each mould and at the sternboard. Then take the plank off and with a batten draw a fair line between the points for the top edge. The bottom edge will show a most peculiar curve. Don't think that this is wrong, as the bottom works out with a hollow forward and ends up with a little lump just before it reaches the sternboard. This is caused by the angle at which the plank sets.

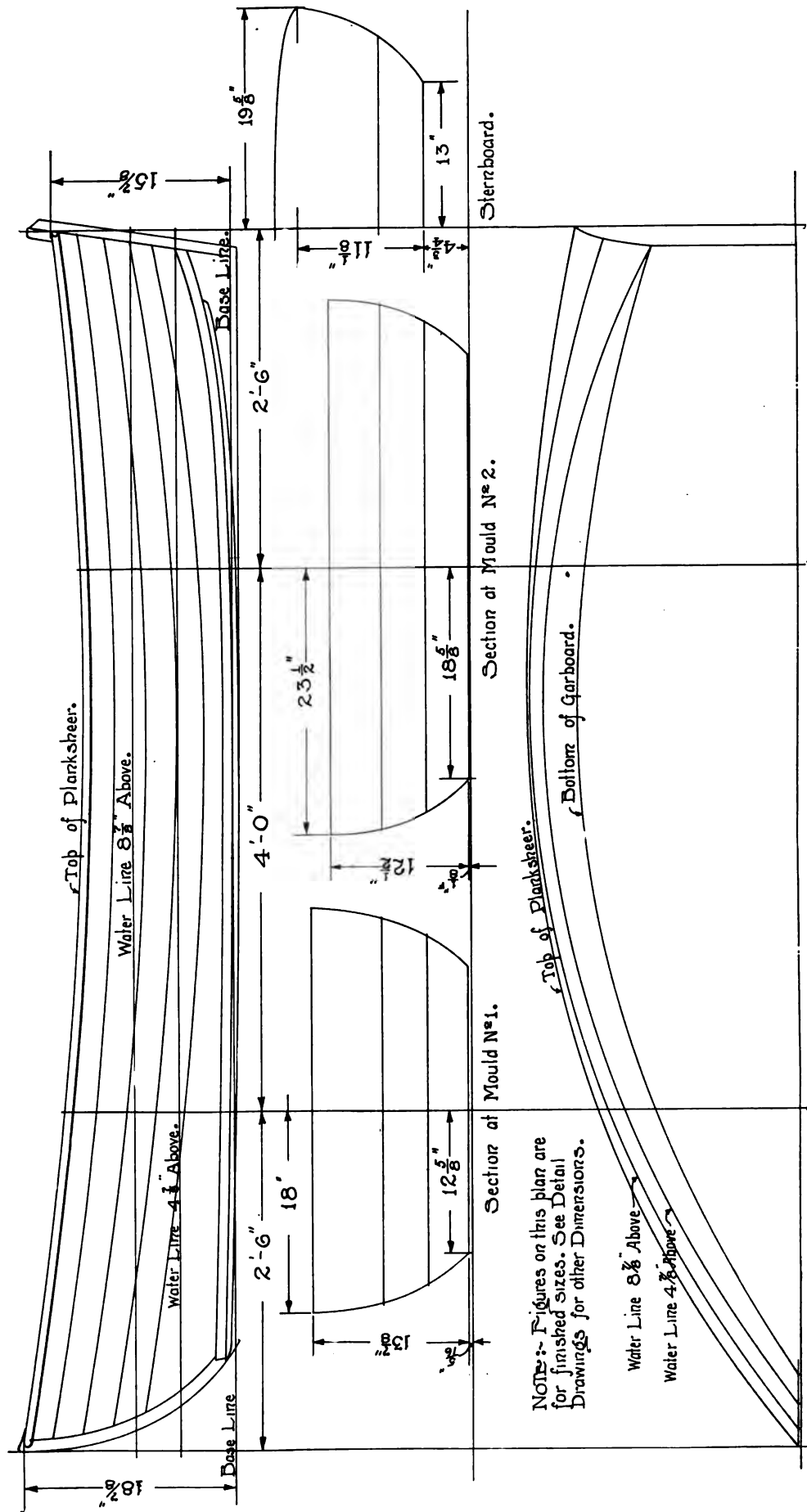
In marking out these planks be sure that the board is held as near as possible to the bevel to which it will be when finally fastened on the boat.

When the garboard is fitted the rabbet is cut for the plank above to fit into. This rabbet is started about 9 inches from the end of the plank and is $\frac{3}{4}$ inch wide and goes to a feather edge, the plank above not being rabbeted at all on the lower edge forward and only enough aft to bring the planks smooth. The upper edge aft on each plank is rabbeted the same length and width as forward, only about $\frac{1}{8}$ inch is left where the plank ends.

Before putting on the next plank the bevel on the upper edge of the garboard is planed off. With a gauge mark $\frac{3}{4}$ inch from and the length of the top edge take a rule or short straight edge and holding the top end against the mark for the top of the plank next above, plane off, with a block plane, the outer top edge until



Top View.



Lines of Nine-Foot Dinghy, Pollywog



Interior View of Pollywog

the bevel is so that the rule or straight edge forms a straight line from the upper mark to the $\frac{3}{4}$ -inch mark for the lap.

Do this at both moulds for a short space—8 or 9 inches—then take off the plank and fair up the bevel all along.

Putting on the rest of the side planking is simply a repetition of the foregoing, only in bending around each plank, the bottom is simply marked along the top of the plank next below and the top from the marks on the stem, moulds and sternboard, only don't forget to allow $\frac{3}{4}$ inch above the latter marks, as the board will go down that much to form the lap and the marks show where the planks should finish to.

After two or three planks are fastened—with brass screws—to the stem and sternboard, four frames, two on each side, are put in. The forward ones on the after side of the forward mould and the after ones on the forward side of the after mould. A piece is cut out of the keel of the frame $\frac{5}{8}$ by 1 inch on the outside edge for the nailing strip to fit into.

The planks are then screwed to the frames with brass screws, through the lap. The object in putting in these frames now is to hold the laps even in the middle of each plank, so that they don't either slip down or work up; this would be awkward when riveting up, as one plank would show wider than another.

When the planks are all on and have been fastened at the ends and the two frames, the laps should be riveted. Use about a $1\frac{1}{4}$ -inch copper nail (cut) and a No. 14 burr. The rivets are spaced 2 inches apart with a pair of dividers, starting from either mould and working forward and aft.

The planks being all riveted, the braces to the ceiling are knocked off and the screws to the stocks taken out. Then the moulds are clamped to the frames and the boat is turned over and placed on a couple of horses.

The next step is to plane off the lower edge of the garboard so that it carries in a fair line from the stem to the lower edge of each mould and runs out to the sternboard. This will have to be done by sighting along to get about what is wanted, the final finishing being done after the nailing strip is put in.

For the nailing strip a piece of oak $\frac{5}{8}$ by $1\frac{1}{4}$ inch is used, and this will either have to be soaked in water for a day or two or else steamed, as there is a twist as well as bend to it.

In putting it in fit the aft end against the sternboard and clamp it to the side of the boat. Then start bending it in place and clamp it there, using as many clamps as possible. When this is being put in let a little project

above the bottom of the garboard to allow for the bevel at which the side meets the bottom.

The forward end will have to be cut off short enough to get by the lower end of the stem, but this does not in anyway matter as it is not absolutely necessary that it should fit tightly against the stem.

While it is clamped in position it should be fastened with brass screws to the garboard, the screws being put through the cedar into the oak.

To make both sides alike, put a nailing strip on the other side after the first has been put in.

Now with a straight edge laid crosswise for a guide plane off the edge of the nailing strip till it comes fair and level to form a fair surface on which to fasten the bottom.

The bottom is then put on. For this $\frac{7}{8}$ -inch stuff is used and it should be put on with pieces not over 6 inches wide.

In putting on the bottom some thick paint is put on the nailing strip and a thread of lamp wick is laid along it and then some more paint put on to insure a tight job.

Starting at the stern straighten up both edges and screw the first piece to the sternboard and the nailing strip on the ends. The next piece is then fitted against and the seam is made so that the inside edge is tight and open a sixteenth on the outside—this is for calking. The other edge is then straightened up and the next plank put on in the same manner. The rest are put on until within about 10 or 12 inches of the stem. The piece next to the stem is of oak and the after edge of this is planed so that the space between it and the rest of the bottom is wedge-shaped. The shutter, or last piece, is cut to fit this, only it is left long and is driven across hard and screwed down.

The boat is then turned over and the inside keel put in. It is screwed into the bottom with 1-inch brass screws, two in each plank, staggered; or in other words, one is put near one edge and the next is put near the other.

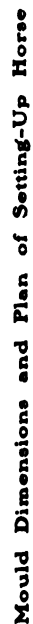
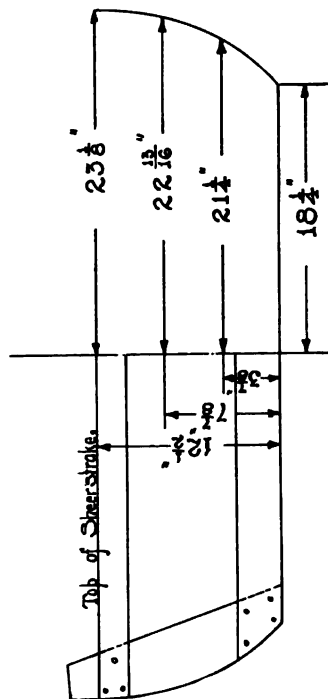
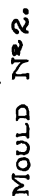
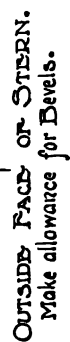
Once again the boat is turned over—bottom up—and the seams are calked. The seam between the bottom and the side is also calked.

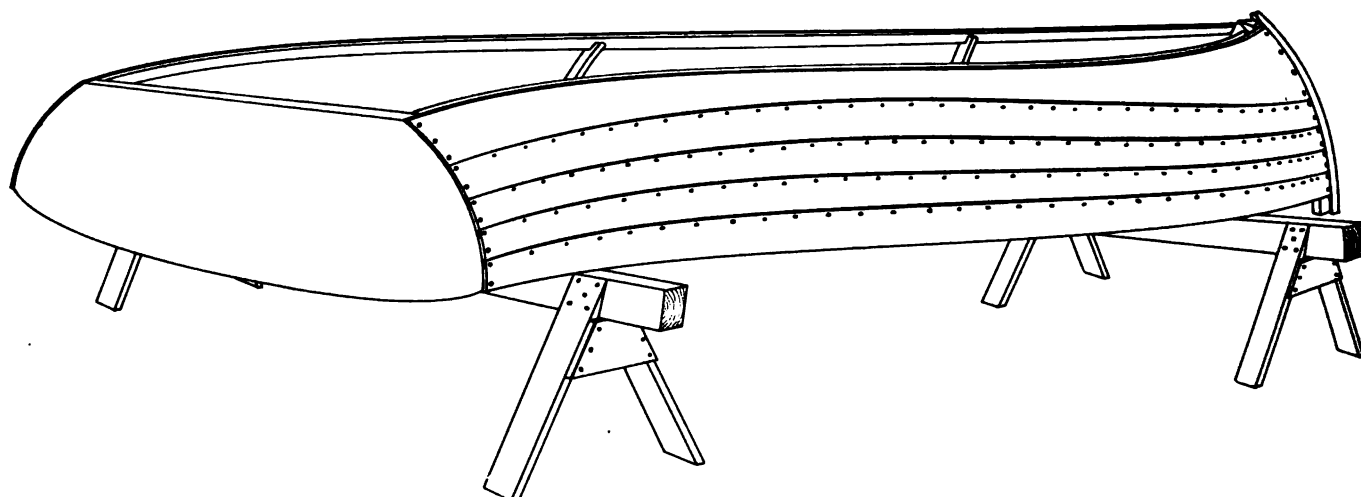
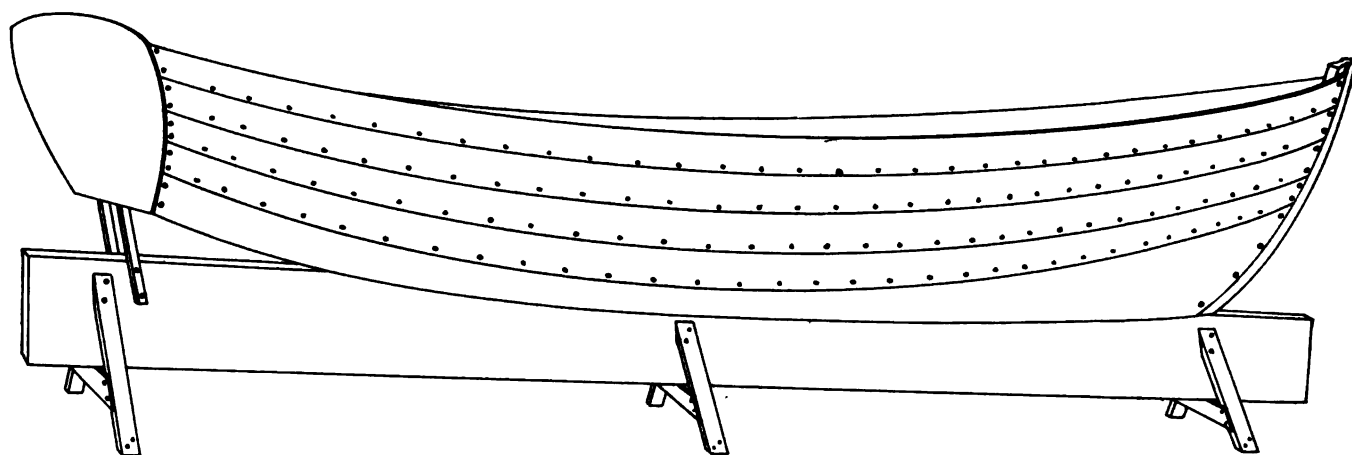
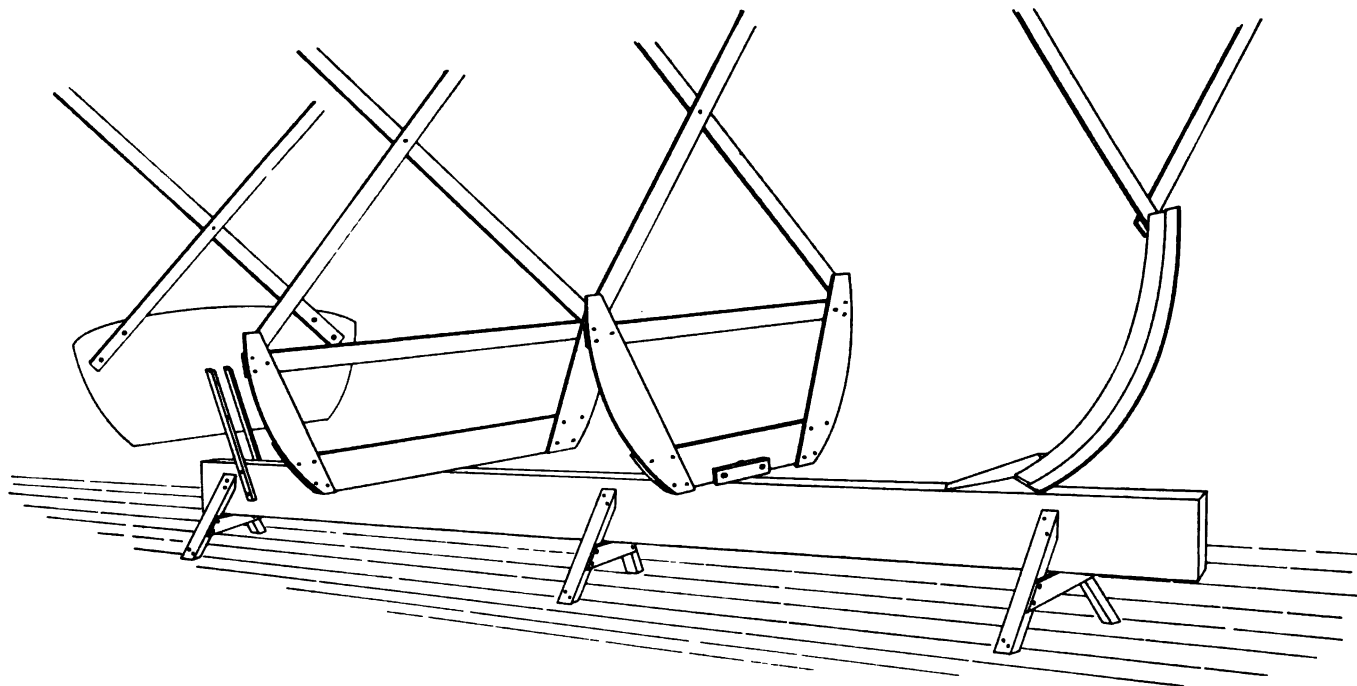
The bottom is now planed off smooth and fair and a coat of thin paint is put on the calking cotton.

For a space of about 6 or 8 inches wide through the center putty up the bottom so that the outside keel can be put on.

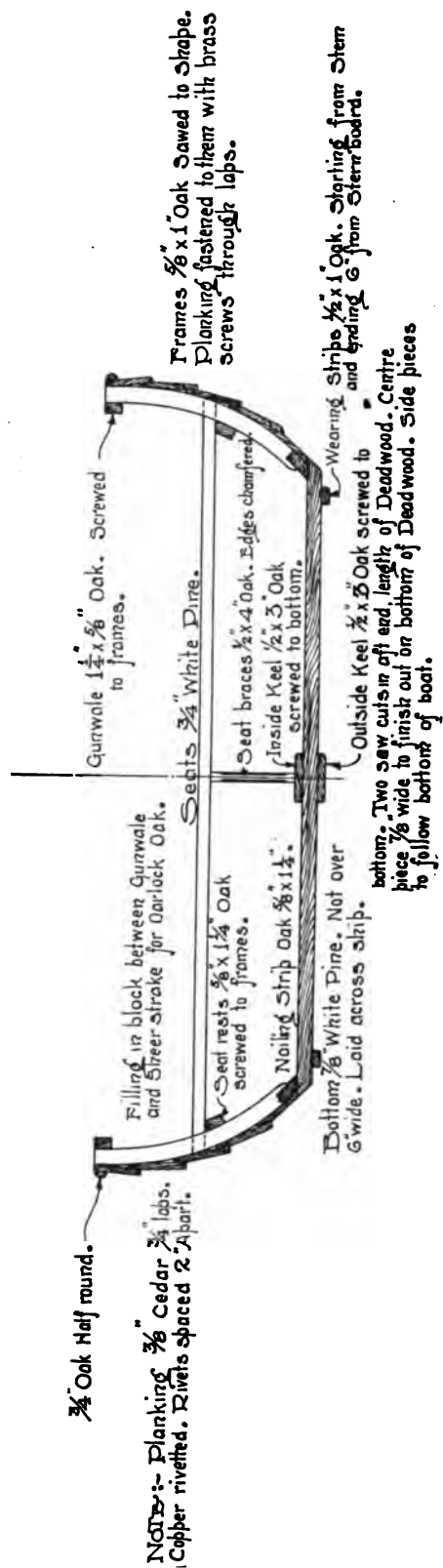
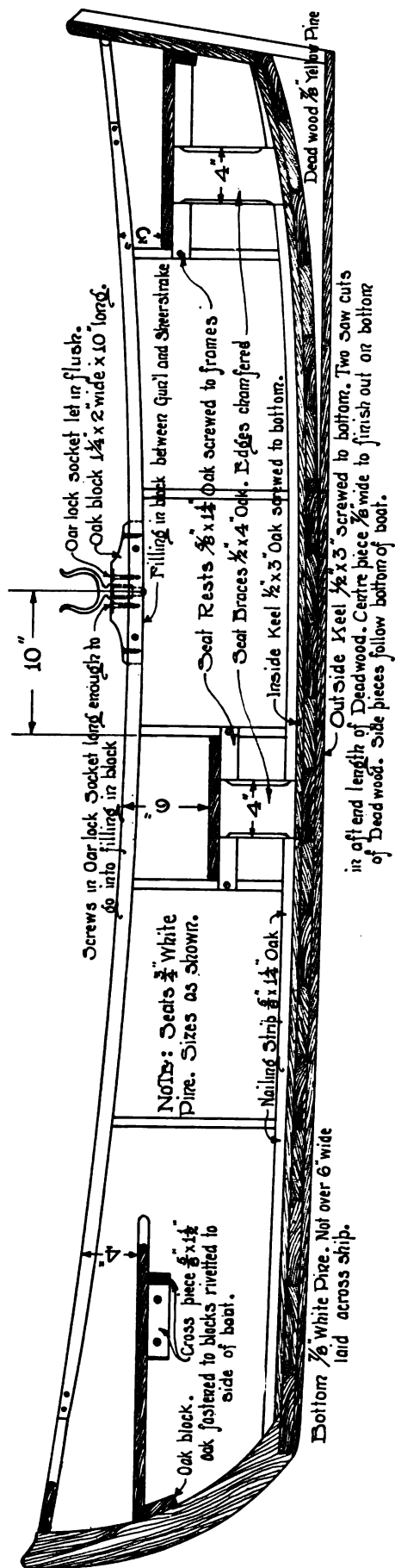


Finished and Ready for Trial





Drawings Showing Setting-Up Horse with Moulds in Place. Boat Planked, and Turned Over for Bottom Planking



Scantling Particulars of Nine-Foot Dinghy, Pollywog

The outside keel is $\frac{1}{2}$ inch thick and 3 inches wide, and aft where the skeg comes two saw cuts are made, making the center piece $\frac{7}{8}$ inch wide and the length of the skeg.

The skeg is then fitted to the bottom of the boat and the bottom edge is marked and cut off. This is then screwed to the bottom of the boat and the post on the outside of the sternboard is then put on and nailed into the skeg.

The center piece of the outside keel is then fastened to the skeg and the two side pieces are forced up against it and screwed to the bottom.

The rest of the keel is then screwed down, the same as the inside—two screws in each plank—staggered. The forward end is rounded and finished with the bottom of the boat on the sides.

It is a very good plan to put plenty of white lead or some very heavy paint under this outside keel, as this is one of the most frequent places where skiffs leak.

The two wearing strips, $\frac{1}{2}$ by 1-inch oak, are then put on. They are started about 6 inches from the sternboard and are bent around to the shape of the bottom of the boat. Aft, where the most bend comes, a screw is put in each plank, but after it straightens out one in every other one is enough.

Before this is put on the bottom should be puttied so that there is no chance for any leaking under these strips.

This finishes the outside except the sandpapering and painting.

The rest of the frames are then put in and screwed from the outside.

The breast-hook and after knees are then put in and the gunwale, $\frac{5}{8}$ by $1\frac{1}{4}$ -inch oak, fastened in place with screws into the knees and frames.

The seats are then put in. The boat was primarily designed to carry four—one rowing, two sitting aft and one forward; and it was for this that the seats were laid out on the plans and it worked out very well in practice.

The forward seat will have to be put in in three pieces as shown. A block of wood is nailed against the stem at the proper height and two pieces about 6 inches long are riveted to the sides. The cross piece to support the after end of the seat is halved into and nailed to this. The two side pieces are fitted first and enough space should be left on the block on the stem for the middle piece to rest on. On all the seats it is a



With One on Board



With the Designer on the Gunwale

good plan to screw them down, so they may be removed easily, if necessary.

Two cross pieces are screwed to the two center frames for the middle seat to rest on and the seat is screwed down into them.

For the after seat a cleat should be fastened to the sternboard and one on either side of the boat, and the seat is fastened to these.

The filling-in blocks between gunwale and side of boat are then put in and the blocks for the oarlock socket are fastened on top of this. The hole for the oarlock socket is bored through both blocks, and when the plate has been let in flush is fastened down with two screws long enough to go into the filling-in block.

Two shorter screws hold the outer ends of the oarlock block.

We used 6-foot oars, and while they are not any too long, for a wide little boat like this they worked very nicely.

As it shows in the photograph with one man rowing, she sets so that the bow and bottom of the sternboard are just even with the water. With two in the stern of course goes down some.

With four in there is 14 inches forward and 7 inches aft of boat still above water.

In the photograph with seven men the total weight amounted to 1,090 lb. I wanted to get one more in, but as there was 17 feet of water under us nobody else would take a chance.

The boat, if built according to the plans and of the materials specified, will weigh, when completed, in the neighborhood of 85 lb.

While this boat is not as easy to build as putting a box together, those who want a good, safe little "dink" a little better than the ordinary, will find pleasure in building and owning this tender.

The dimensions are as follows:

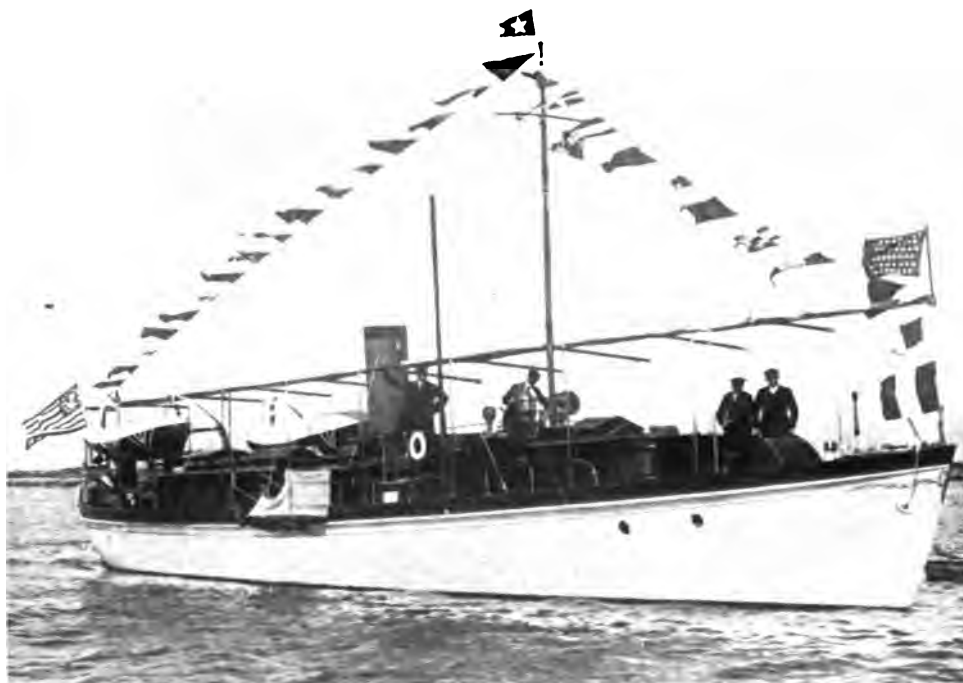
| | | | |
|------------------------|---|--------|------------------|
| Length o. a. | 9 | feet 0 | inches |
| Length on bottom | 8 | " | $1\frac{1}{4}$ " |
| Breadth on top | 4 | " | 0 " |
| Breadth on bottom | 3 | " | 3 " |



THIS list was first given the world in 1897 and was the earliest attempt at illustrated advertising for any product. In fact, it was impossible before that time, as cuts for illustrating were too dear to permit of their being used for advertising just one time in a periodical publication. This idea has since been imitated on every hand, and to-day is one of the principal features of yachting journalism. Like all other people of brains and originality, we have trailed in our wake a gang of imitators who have copied without acknowledgment or thanks our best efforts. It is the kind of theft the law does not reach and for which there is no punishment. It is the crime of little minds.

I love to read over this Yachts For Sale list and suppose every other genuine boat-crank does. No man is ever completely satisfied with the craft he has, and is always looking for something faster, or slower, or smaller, or larger, or roomier, or in some way something different. It is a good thing for the sport that those who are engaged in it are thus inclined; if we remained contented with our vessels there would be much less building, and consequently fewer boats in the fleet. I have frequently discoursed upon the proper method of advertising your boat so as to interest the buyer, and it seems unnecessary to repeat here what has been printed in the earlier numbers; but let me remark that there is

always a market for a good boat at the right price. If your boat is of the type that is wanted you will find no difficulty in selling her if you are willing to accept a fair sum. I find that many boats that are offered are not worth what is asked for them, and while it is probable that the owner would sell at a lower figure if brought to terms, it is a great mistake to quote in an advertisement a price far above what you are willing to take. Never quote a price unless it is one that makes the craft a bargain. Of the boats advertised last year and disposed of, two of them, so their owners wrote us, sold a few days after the list came out simply because the price was a low one. Several did not hear from their advertisements at all, and one of these men told me afterwards that the price he quoted was \$500 more than he expected to get. Some of the boats did not find buyers because they were the sort of craft that men do not want, and it is of very little use advertising such boats unless you are willing to let them go at a very, very low figure. This season promises to be lively, so that I judge there will be a continuous and heavy demand for all kinds of pleasure craft. If you succeed in selling your yacht I hope you will let me know, as I make a study of these things, and would like to keep track of the market so as to be in a position to judge how the world of sport is progressing.



6411

No. 6411—For Sale—Twin-screw semi-express ELCO cruiser, 93 ft. o. a., 13½ ft. beam, 4½ ft. draught. Extra heavy construction throughout. To protect planking from worms, underwater portion is covered by 14-oz. copper sheets. Mahogany deckhouse; teak bulwarks and hand rails; 5 watertight bulkheads. Steers from bridge deck. Owner's stateroom forward with two berths and bath adjoining. Main saloon with four transom berths, connected with toilet. These quarters finished in beautiful African mahogany, electric lighted, well ventilated, give over 6 ft. headroom. Galley full width of boat. Motor compartment separated by watertight bulkhead contains engineer's berth, crew's toilet. Commodious foc'sle. Two 100-h.p. Standard engines. Speed 15 miles. Electric plant. New copper gasoline tanks, 800-gal. capacity. Complete cruising inventory; everything of the finest procurable, including launch and dinghy in davits. This yacht has proven one of the most successful of the larger gasoline craft extant. During maiden cruise of 3,500 miles from Bayonne, N. J., to Galveston, Texas, via Hudson River, Erie Canal, Great Lakes, Chicago Canal, Mississippi River and Gulf of Mexico, she showed wonderful seagoing qualities. Cost \$35,000; offered at one-half. Address Stanley M. Seaman, 220 Broadway, New York City.

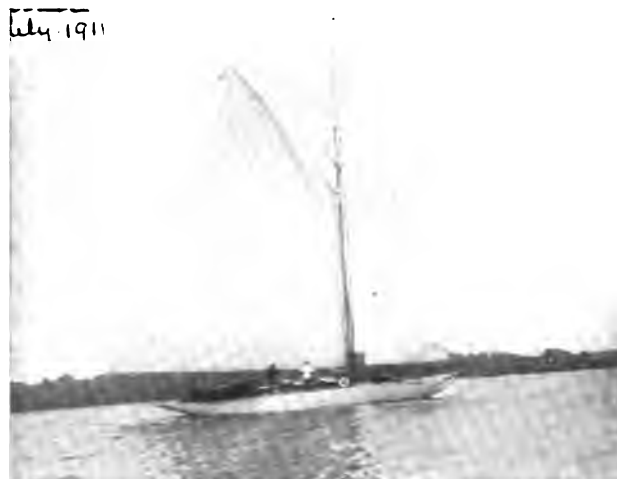
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No. 6613—For Sale—Houseboat Comfort, seven rooms and bath. For particulars address G. V. LeSuer, Manhattan Bridge, Sheephead Bay, N. Y.



6613

No. 6640—For Sale—Very attractive keel cruising sloop, 57 ft. o. a., 40 ft. w. l., 13 ft. 5 in. beam, 8 ft. 8 in. draught; flush deck; 14 tons of lead ballast on keel; 19 gross tonnage. Large cabin with 6 ft. 2 in. headroom, finished in teak and very handsome. Two staterooms, two toilets, one aft and one forward for crew. Sails made by Cousens & Pratt in 1909 and in perfect condition. Standing rigging made of the finest wire rope and almost new; Oregon pine spars; new running rigging. Most complete cruising equipment, including two boats, one a 14-ft. power tender and the other a first-class rowing tender; very finest cushions, curtains, etc. No expense has been spared in maintaining the equipment and condition of this yacht and she is complete in every detail. Carries three anchors and cables, two chains and one rope. Has two water tanks with a total capacity of 250 gal., large binnacle, davits for tender, etc. This yacht is built in the strongest manner and is capable of cruising anywhere. Unusually stiff and able and a fast sailer. As may be seen from the photograph she is of attractive appearance with well-turned lines. Only reason for selling, owner desires larger boat. Can easily be inspected by applying to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6640



6812

No. 6812—For Sale—Largest motor boat now available, 118 x 110 x 15 ft., recently completed, steel hull, and practically flush deck; power plant consists of two Craig motors of 300-h.p. each, giving a speed of 18 to 20 miles. Engines and gasoline tanks situated in watertight compartment. The boat has commodious owner's and guests' quarters, with large deckhouse containing dining saloon, pantry and galley. Has cruised from the Great Lakes to Key West. Everything in best possible condition. Reasonable figure will be accepted. For plans and further particulars apply to William Gardner, 1 Broadway, New York City.

* * *

No. 6811—For Sale—Combination houseboat and cruiser, 90 ft. o. a., 17 ft. beam, 3 ft. 4 in. draught; built last season; equipped with two Craig motors 60-h.p. each; complete electric light plant, including searchlight; speed 12 miles; carries two boats and power tender; sunken deckhouse forward used as social hall. Owner's and guests' quarters consist of three double staterooms, single stateroom, two bathrooms, toilet room and large dining saloon full width of boat. Adapted for use in both Southern and Northern waters. For plan, price and further particulars apply to William Gardner, 1 Broadway, N. Y. City.

* * *

No. 6646—For Sale—One of the best single-handers afloat; 24 ft. o. a., 18 ft. 6 in. w. l., 8 ft. 2 in. beam, 4 ft. 10 in. draught. Built in 1905 of the very best materials and day labor. First-class in every respect and unusually substantial, strong and tight. Easily handled by one person; fine steerer; every rope leads to cockpit. Unusually large cabin. Her cockpit is really watertight and self-bailing, no plugs being required

at any angle of keel. Very able, dry and fast. Uncapsizable, 1,800 lb outside ballast. All finish bright. Narrow strip deck.



6646

New sails and rigging. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6811



994

No. 994—For Sale—Especially attractive 83x13.9x4-ft. cruising power yacht. Launched August, 1910. Speed 13-15 miles; 100-125-h.p. Standard motor. Two double staterooms, bath, independent lighting plant, etc. Handsomely finished and furnished. Finest craft of type and size on market; an unusual bargain. Cox & Stevens, 15 William Street, New York City.

* * *

No. 175—For Sale—86-ft. cruising power yacht. Speed 12-14 miles. 75-h.p. Murray & Tregurtha motor. Two double staterooms, bath, electric lights, etc. Excellent bargain. Owner



175

has larger from our design. For full particulars apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 910—Exceptional Bargain—53.5x10.3x3-ft. Lawley-built day cruiser. Very best construction. Teak finished throughout. Saloon with two transoms, toilet, etc. Completely found.

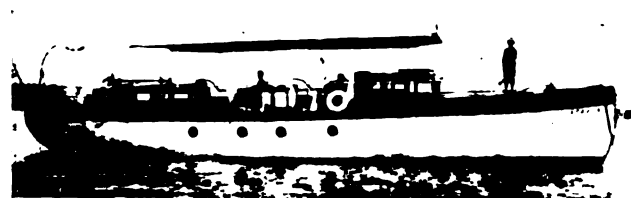


910

Will be sold without motor. Best of type available. Cox & Stevens, 15 William Street, New York City.

* * *

No. 668—For Sale—Desirable 50x10.3x3.6-ft. bridge deck cruiser. Speed 10-11 miles; 25-35-h.p. Standard motor. Stateroom, two saloons, bath, etc. Cox & Stevens, 15 William Street, New York City.



668



573

No. 573—For Sale or Charter—90-ft. twin-screw power yacht. Speed 11 miles. Large accommodations, including three double staterooms, main and dining saloons, bathroom, etc. In first-class condition. Handsomely finished and furnished. Unusual bargain. Cox & Stevens, 15 William Street, N. Y. City.

* * *

No. 1662—For Sale—Practically new 90x17x3.5-ft. twin-screw power yacht; houseboat type. Speed 10-12 miles. Four staterooms, two bathrooms, etc. Ideal cruiser for both North-



1662

ern and Southern waters. Cox & Stevens, 15 William Street, New York City.

* * *

No. 1532—For Sale—Twin-screw cruising power yacht; 75x13.6x4 ft. Built 1911. Speed 12-14 miles; two 30-40-h.p. Murray & Tregurtha motors. Three staterooms, bath, dining sa-



1532

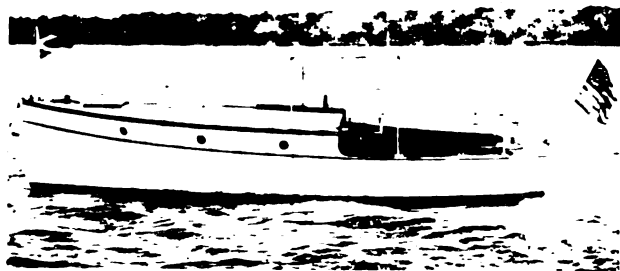
loon, etc. Handsomely finished and furnished. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 1596—Excellent Bargain—42.6x8.6x2.8-ft. raised deck cruiser. Built in 1909. Speed 10 miles; 16-20-h.p. 4-cylinder Standard motor. Owner has larger. Apply to Cox & Stevens, 15 William Street, New York City.



1596

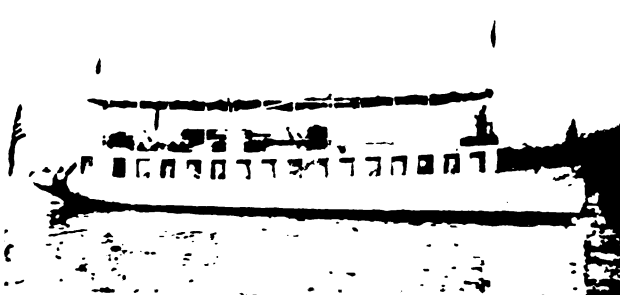


6570

No. 6570—For Sale—Chip II, 25 ft. long, 6 ft. 6 in. beam, 30 in. draught. Built, 1909, by Rice Brothers; oak frame, cypress planking, copper fastened; all fittings bronze. Heavy-duty 6-h.p. Boothbay engine; speed 8 miles. Curtiss toilet; Sands' sink with running water from copper tank. Two cylindrical gasoline tanks, 24 hours' supply. Watrous whistle outfit. Large ice-chest; two-burner alcohol stove. Full set cushions for cabin and cockpit; sleeps four. All fittings of the best. Complete inventory. Very seaworthy: has cruised from Boothbay, Me., to New London. Price \$700, including 10-ft. Atlantic tender and Fairhaven mooring. George A. Cutter, Taunton, Mass.

* * *

No. 1548—Exceptional Bargain—Power houseboat, 70x16x3.9 ft. Speed 9 miles; 60-h.p. 4-cylinder, 4-cycle Craig motor. Large double stateroom forward; main saloon 30x13 ft. Copper gaso-



1548

lene tank 260-gal. capacity. In excellent condition. Fully found. Apply to Cox & Stevens, 15 William Street, New York City.



6572



6634

No. 6572—For Sale—Sacrifice—Yacht Admiral.—Dimensions, 39x11½x3; 2x2 oak ribs spaced 12 in. 1¼-in. planking. Buffalo 15-h.p. 4-cylinder, 4-cycle. Perfex ignition—reverse gear. Salt-water fittings. Two 30-gal. fuel tanks on cabin roof, giving unique and perfect gravity feed. Bulkhead with door separates main cabin and pilothouse where engine is located, giving one-man control. Toilet and galley off main cabin. Galvanized railings all around on main and upper decks. Speed 10 miles. Engine, hull and every vital part guaranteed to be sound and reliable. Price less than cost of machinery. Boat can be seen at or inquiry can be made of Davis Boat Works, Sandusky, Ohio.

* * *

No. 6634—For Sale—The Clio. An unusually "big small boat," 55 ft. o. a., but easily handled by two men. Schooner-rig, but clever with any combination of sail and looks up under foresail and jumbo like a smart fisherman. Two staterooms and large main cabin sleeping four. Handsome, and comfortable in all weather. Power tender on davits. Built six years ago; in good condition. Sails and inventory first rate. Owner lets her part of every season at \$500 a month. Can be bought for one-third of cost. Hauled out at Marblehead. Apply through any broker or direct to owner, John S. Phillips, American Magazine, 381 Fourth Avenue, New York City.

* * *

No. 1534—For Sale—Centerboard auxiliary yawl, 40 ft. o. a., 30 ft. w. l., 12.6 ft. beam, 3.6 ft. draught. Built 1906. Finished in mahogany. Double stateroom, large saloon, toilet, etc. Speed under power 10 miles; 20-h.p. 4-cylinder, 4-cycle Buffalo motor under cockpit floor. Fully found. Heavily constructed and very seaworthy; easily handled. Price attractive. Apply to Cox & Stevens, 15 William Street, New York City.



1534



6810

No. 6810—For Sale—Twin-screw, gasolene cruiser, 75x13x4 ft.; used one season; two 30-40-h.p. Murray & Tregurtha engines; speed 12 miles; deckhouse arranged as dining saloon; galley aft of deckhouse with crew's quarters forward; aft of engine room space, which is located in watertight compartment, are two staterooms, bathroom and owner's double stateroom. Engine controls on deck; complete equipment, including power tender of speed type. Special attention given by owner to small details, adding to comfort and economical operation. For price, plan, etc., apply to William Gardner, 1 Broadway, N. Y. City.

* * *

No. 6818—For Sale—Very able, gasolene cruiser. Dimensions: 93 ft. on deck, 75 ft. w. l., 14 ft. 6 in. beam, 4 ft. 6 in. draught; of best design and build. Accommodations include three staterooms and saloon; very commodious bridge deck; equipped with two 60-h.p. Craig engines; speed 13 to 14 miles an hour; electric lights; power tender and complete inventory of excellent quality. Engine room, galley, and crew's quarters located aft. Very reasonable price will be accepted. For further particulars apply William Gardner, 1 Broadway, New York City.

* * *

No. 6637—For Sale—Very fast and able sloop. Built to race in Class Q by designs of Tams, Lemoine & Crane in 1905. 34 ft. 6 in. o. a., 23 ft. 4 in. w. l., 7 ft. 3 in. beam, 5 ft. 6 in. draught. Two suits of sails, one new in 1909. Large self-bailing cockpit; 4 ft. 6 in. headroom in cabin. Toilet under one of the transoms. Awning, ice-chest, etc. Champion of Class Q in 1905. Did not race in 1906 and 1907, but in 1908 won 12 firsts,

2 seconds, 1 third in the Handicap Class. In 1909 won 2 firsts out of 2 starts in Handicap Class. Inspectable near New York



6637

City. Bargain price, \$600. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6818



6585

No. 6585—For Sale—Famous Canada's Cup Winner yacht Seneca; price for immediate sale \$3,000. Description: Designed and built by Herreshoff Mfg. Co., in 1907. Built of the best material and workmanship, no expense spared. Absolutely in A-1 condition. Dimensions: 46 ft. o. a., 32 ft. w. l., 9 ft. 1 in. beam, 6½ ft. draught, 1,170 sq. ft. of sail. Measurement: Class "P," 30.70. Inventory: Sails—One Ratsey jib, balloon jib, and mainsail made in 1911. Only used for one race. Ratsey jib, balloon jib, mainsail and spinnaker made in 1907. One Herreshoff working jib, No. 2 jib, storm jib, reaching jib, balloon jib, spinnaker and mainsail. All running rigging and spars in first-class condition. One cable and anchor. Anchor manufactured by the Herreshoff Mfg. Co. One substantial dinghy; two sets of oars. All in A-1 condition. Cabin accommodations: Sleep six, two in main cabin and four in pipe bunks. Curtiss w. c.; ice-box; cabin lighted by electricity; compass,

side lights, riding lights, etc. Eric C. Moore, 69 Stone Street, Rochester, N. Y.

* * *

No. 6569—For Sale—Bargain at \$225. Cabin centerboard knockabout 25x18x8. In splendid condition; very fast, able, worthy boat in every way. Awning, sail cover, round-bottom dinghy, spoon oars. Boat is under cover in Colonial Y. C. yard, foot 140th Street, West, New York. Address Smith, 2131 Broadway, New York City.

* * *

No. 6589—For Sale—Fast cruising knockabout, 48 ft. o. a., 30 ft. w. l., 14 ft. beam, 5 ft. draught; mahogany cabin, sleeping accommodations for six; w. c. and lavatory; complete inventory including tender, awnings, etc., boat in first-class condition, able and fast. Owner will accept any fair offer. L. N. Martin, 2 Rector Street, New York City.



6569



6589



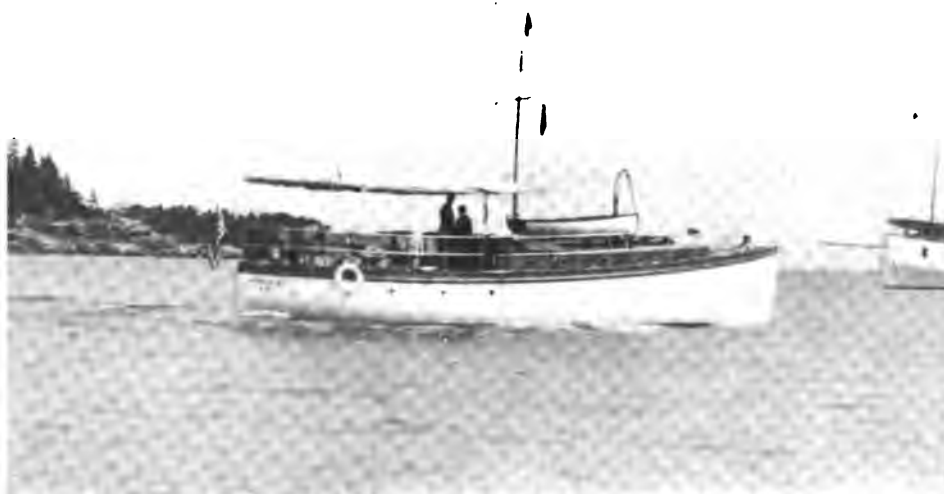
1167

No. 1167—For Sale—Fine steel auxiliary schooner yacht, length o. a. 89 ft., w. l. 63 ft., beam 18 ft., draught 8 ft. 3 in.; built by Lawley; flush deck; equipped with 45-h.p. Craig engine, new 1908, perfect condition, feathering propeller; speed 8 miles; complete new suit of sails; new electric lighting plant; two boats (dinghy and launch); accommodation: two double and two single staterooms, large main saloon, bathroom, two toilets, galley and forecastle. 6 ft. 3 in. headroom. Very reasonable price will be considered for immediate sale. For further particulars apply William Gardner, Naval Architect and

Yacht Broker, 1 Broadway, New York City. Telephone, 3585 Rector.

* * *

No. 6814—For Sale—Stanch, able power boat, adapted for deep-sea cruising; 50x11.6x3.10 ft. 4-cylinder, 28-h.p. motor; exceptional amount of deck space for a boat of her size. Good cruising accommodation. Owner has larger boat and will accept very reasonable figure. Apply to William Gardner, 1 Broadway, New York City.



6814



T1202

No. 11202—For Sale—Polemast keel cruiser, 39 ft. o. a., 24.10 ft. w. l., 12 ft. beam, 5.10 ft. draught. Self-bailing cockpit. Unusually well constructed—cedar planking and holystoned decks—no butts. Copper fastenings. Mahogany deck trim. $3\frac{1}{2}$ tons lead on keel. Cabin finished in butternut, gives 5.10 ft. headroom, contains two 10-ft. bunks. Toilet; galley; pipe berth forward. Completely equipped. Two mainsails—one by Ratsey, three jibs, etc.; compass, Ostermoor cushions. Excellent heavy-weather cruiser and especially fast in light airs. Very low price. Inspectable Greenport, L. I. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 591—For Sale—Desirable keel auxiliary yawl, 50x37x14 x5.6 ft. Built by well-known firm. Double stateroom, 14-ft. saloon, etc. Speed under power $6\frac{1}{2}$ miles. 25-h.p. motor under



591

cockpit floor. First-class condition. Cox & Stevens, 15 William Street, New York City.



6676



359

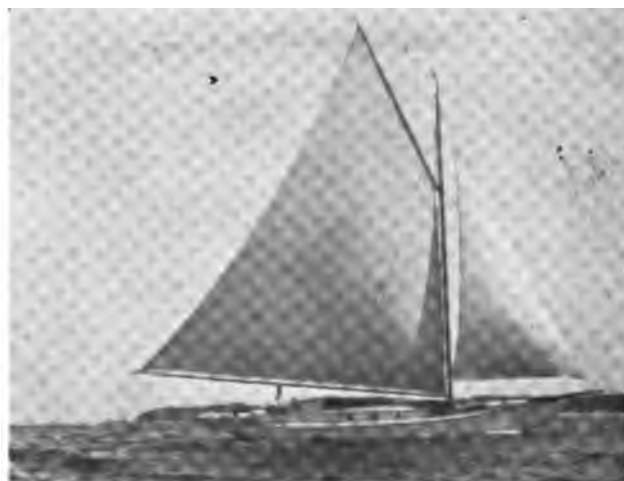
No. 6676—For Sale—Single-handed coast cruiser, 35 ft. o. a., 8 ft. beam, 2.11 ft. draught. Launched 1911. Cockpit steering gear and engine control. Copper and brass screw fastenings. Teak deck trimmings. Cabin will berth four; toilet room; galley. 6 ft. headroom. Electric lights—all lamps Tungsten type. 50-h.p., 6-cylinder, 4-cycle engine, gives speed of 13 miles per hour. Completely equipped for cruising. Very able boat, suitable for outside work. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 359—For Sale—Desirable twin-screw cruising motor yacht, 65x13x3 ft. Speed 12 miles; two 18-24-h.p. Standard motors. Accommodations include pilothouse, double stateroom, 10-ft. saloon, two toilets, etc. Interior finish of mahogany, bird's-eye-maple, etc. Complete inventory, including launch (new 1910) and dinghy. In first-class condition. An exceptionally able, handsome and roomy craft. About \$3,200 was spent on her in 1910 in overhauling and improvements. Bargain for quick sale. For further particulars, plan, etc., apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 11117—For Sale—Keel auxiliary sloop, 36 ft. o. a., 25 ft. w. l., 9 ft. beam, $5\frac{1}{2}$ ft. draught. Extra heavy construction. Copper fastenings. 3,500 lb lead on keel. Cabin provides berth under deck each side with transom in front making into sleeping berth. Galley forward. $4\frac{1}{2}$ -h.p. Eagle engine, installed 1907, gives speed of 5 miles per hour. Complete cruising equipment, including 10-ft. tender. New suit sails and rigging, 1910. Compass, cooking utensils, etc. Boat is in first-class condition and a very able cruiser. Price \$700. Address Stanley M. Seaman, 220 Broadway, New York City.



11117



6593

No. 6593—For Sale—Gasolene cabin cruiser, 52x48x11x4. Built 1911, designed by Swasey, Raymond & Page. Hard pine planking, 1¼ in., oak ribs, 1¾x2 in., rounding bow, canoe stern; cabin finished in African mahogany, 6.3 ft. headroom. Bright decks, two toilets. Will sleep nine; one bathroom, complete. Lighted by electricity and kerosene. Inventory complete, glass, silver, dishes, linen, bedding, etc. One 10-ft. bright cedar tender. One stateroom in mahogany. Standard engine. Built, 1911. 25-35-h.p. single-screw. 4-cylinder, 4-cycle make-and-break engine. Reverse gear carried to bridge. Engine completely equipped. Speed 12 miles per hour. Gasolene tank, 300 gal.; water, 150 gal. Tanks copper, aft underneath deck. The arrangement is unique, large saloon and owner's stateroom, with bathroom between, connecting with both rooms, equipped with running hot and cold water. Separate galley full width of ship, with ice-box, dresser, sink, hot-water tank and Shipmate range. Engine room forward, crew's quarters with pipe berths and separate toilet. Cabins finished in mahogany with velour cushions, silk curtains, rugs. Spacious bridge forward, lazyback seat and chairs. All control handled from bridge. Large flush deck aft. Will be sold at big sacrifice, owner building larger boat, same plans. Inquire at once. C. W. Clifford, Jr., Bath, Me.

No. 6587—For Sale—"The fastest raceabout ever built." Champion Long Island Sound three years. Designed by Crane; built by Wood, City Island, 1903; keel-centerboard, double planked, mahogany-cedar, copper fastened; 34.5x21 ft., beam 8.8 ft., draught 4 ft., board down 6.3 ft.; 3,000 lb lead outside; 600 ft. sail; two berths. Unusually complete equipment, including two Wilson & Silsby sails, three working jibs, one storm jib, one balloon jib, spinnakers; electric light outfit; eight pantasote cushions. Everything first-class condition. Inspectable, Macatawa, Mich. Price \$750. Charles Scates, 728 Chicago Opera House, Chicago, Ill.

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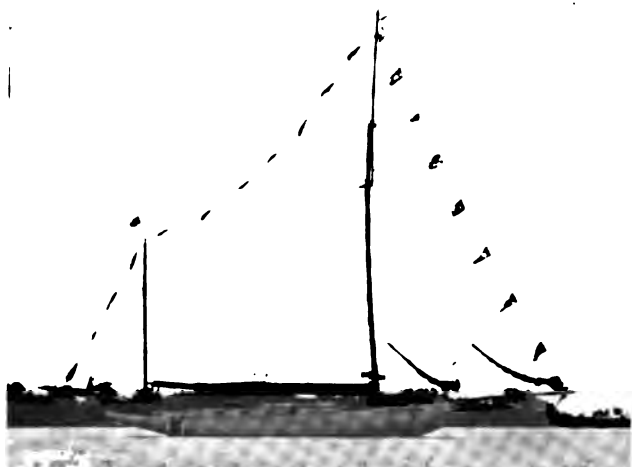
No. 6577—For Sale—Auxiliary sloop; a splendid cruiser with remarkable speed. Has won many first prizes on coast. 25-h.p. motor recently installed, giving speed of 9 miles. Fife design and I. Saunders of Bristol, builder. 46 ft. o. a., 30 ft. w. l., 9 ft. beam, 6 ft. 8 in. draught. First-class condition. Fore-castle, refrigerator, toilet, and mahogany cabin. Complete equipment, awnings, anchors, 30-gal. copper gasolene tank, etc. Ideal for Sound or coast. Business inland requires owner to sell at once for almost any price. Inspectable near Providence Inquire of Walter H. Robinson, 107 Westminster Street, Providence, R. I.



6587



6577



6605

No. 6605—For Sale—Auxiliary yawl, 56.6x14.4x5.6 ft.; 40-h.p. 4-cylinder, heavy-duty Sterling motor, new 1911, which gives her a cruising speed of 9 miles. Inventory complete, including a new power tender. Yacht in A-1 condition. Price reasonable. A. J. McIntosh Yacht Agency, 32 Broadway, New York City.

No. 6604—For Sale—Auxiliary yawl, 30x9x5, built 1910 exactly to design of Skipper Day's ideal cruiser Four Winds.



6604

Lovely sea-boat, fast for size. Decks and planking teak copper fastened. English sails by Linton Hope, new 1911, also



6609

spare suit 1910. New 8-h.p. 4-stroke, 2-cylinder Kelvin kerosene engine, giving 5 knots in smooth water. Bergius' folding propeller does not retard boat nor affect steering. Pump closet. Grip winch. Can ship direct from Shanghai to Pacific coast. Price \$1,300. H. H. Bristow, Shanghai, China.

No. 6638—For Sale—36x8.5 ft. gasoline power boat, 3.6 ft. draught, two cabins, full headroom, cockpit 7 ft. Toilet room; large clothes locker in main cabin, also one in engine room. Electric lights and complete inventory. Sleeps four, this number making three weeks' cruise Maine coast last season. Knox 2-cylinder, 2-cycle, 13-h.p.; speed good 9 miles. 10-ft. tender. Galley in engine room. Two-burner alcohol stove, enamel iron sink. Fuel capacity 65 gal., fresh water 50 gal., drinking water, special tank 12 gal. Mast and sail. Air tank for whistle. Ice-chest and storage space in stern. Inspectable Boston, Mass. Sacrifice price \$1,200. Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 6609—For Sale—Knockabout, 27 ft. o. a., 16½ ft. w. l., 6½ ft. beam, 4 ft. draught; 423 sq. ft. sail; sails two years old, including balloon and storm jib, all in A-1 condition. Boat five years old and has always had best of care. Fine craft for day-sailing and racing. Must be seen to be appreciated. Laid up under shed at Puthill & Thom's, Greenport, L. I., N. Y. Owner will be unable to use her this Summer. Price \$250. Address Henry B. Moore, 3331 Walnut Street, Philadelphia, Pa.

No. 6648—For Sale—At Sacrifice Price. Crack Sonder boat, practically new. Designed and built by Lawley at South Boston, Mass. An ideal boat for afternoon sailing, as she is very easy to handle. One of the fastest boats in her class. Cost over \$2,000. Offered at bargain figure of \$600. Inspectable Marblehead, Mass. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6638



6648



6819

No. 6819—For Sale—Excellent, modern racing and cruising sloop, built from my design by B. Frank Wood; double planked, mahogany construction. Dimensions: 65 ft. on deck, 40 ft. w. l., 12 ft. 6 in. beam, 9 ft. draught; well-known yacht; winner of many prizes. Has two complete suits of sails, one new last season. This boat has always received the best of care and attention, and is in first-class condition throughout. Has excellent accommodation, consisting of double stateroom aft, with two berths, large main saloon with transom berths, buffet, etc., toilet, roomy galley, and forecabin. Equipped complete both for cruising and racing. Must be seen to be appreciated. Very reasonable figure will be considered for immediate sale, as owner is building larger boat. For further particulars, apply William Gardner, Naval Architect and Yacht Broker, 1 Broadway, New York City. Telephone, 3585 Rector.

* * *

No. 6639—For Sale—Well-known catboat Arawah. Very fast and a splendid cruising boat. Won Championship of Quincy Y. C. three consecutive years; Championship of Mass.



6639

Y. R. A. one year; Midsummer Series, Marblehead, two years, etc. 25 ft. 10 in. o. a., 23 ft. 8 in. w. l., 11 ft. beam, 3 ft. 6 in. draught. Lead ballast, 1,000 lb outside, 2,600 lb inside. Pigeon hollow mast, boom and gaff; two suits special Lowell duck sails, one suit made by Hamblin & Son, 1911, and the other by Cousens & Pratt, both in good order. New 1911 khaki sail cover, new awning, etc. Complete equipment, including tender, two anchors and cables, etc. One of the best equipped catboats on the Atlantic coast. Inspectable Quincy, Mass. Reasonable price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 6829—For Sale—Hunting cabin cruiser, 33 ft. o. a., 8 ft. beam, 3 ft. draught. Built by day's labor in very substantial manner. Steering gear and engine control in cockpit. Cabin berths two people comfortably; toilet room; galley; mahogany interior gives 5 ft. 9 in. headroom; berth in engine room. 12-h.p. double-cylinder Gray & Prior motor gives speed of 10 miles per hour. Completely equipped, including 12-ft. tender, compass, etc. An able single-handed cruiser in first-class condition. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.



6829



2377

No. 2377—For Sale or Charter—Offered by Estate. Modern auxiliary ketch, new, 1910. Length 97 ft. o. a., 76 ft. w. l., 20 ft. beam, 4 ft. draught; built from my design by the well-known firm of A. C. Brown & Sons, 1910. Flush deck, with cockpit. Construction of the best, hull copper fastened. Equipped with a 4-cylinder, 40-65-h.p. Murray & Tregurtha engine, speed 8 miles. Has complete electrical equipment. Accommodation consists of two double and two single staterooms, two bathrooms, one of which is a shower, large main saloon with transom berths, sideboard, etc., engine room, galley, etc. Interior finish staterooms, etc., white enamel; saloon, hardwood. Ratsey & Lapthorn sails; two boats and one launch; complete equipment. Excellent sea-boat. Has cruised from Key West to Labrador. Inspection invited. For full particulars regarding price, plan and location consult William Gardner, 1 Broadway, N. Y. City.

* * *

No. 6601—For Sale—Auxiliary centerboard yawl Katharine, 29.7x22x10.7x3, designed and built by Davis, of Providence, 1899. 3,000 lb lead inside; large cabin, clothes and side lock-

ers; headroom 4½ to 5½ ft. Galley with alcohol stove, enclosed toilet room, Sands' closet. Sleeps four on one extension and two single transoms; hair cushions, corduroy covered. Two 15-gal. water tanks, 6-h.p. Hartford motor, entirely below cockpit; regulation running and riding lights; two anchors and rode; awning; windlass; ice-boxes; compass; Winter cover. Entire outfit believed first-class condition. Owner needs smaller boat. Address Frederic S. Nock, East Greenwich, R. I.

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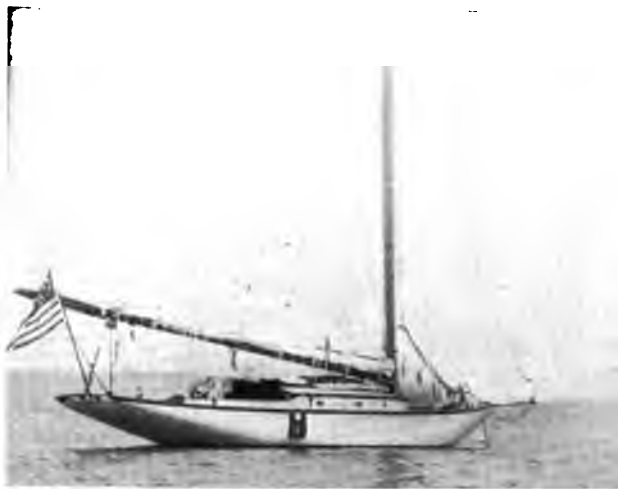
No. 6610—For Sale—Auxiliary centerboard yawl, 30 ft. w. l., length 34 ft. o. a., beam 12 ft., draught 3 ft. Roomy cabin with four berths. Self-bailing cockpit; Star steering gear with mahogany wheel. Sails new last year. Victor Fairbanks 4-h.p. engine, speed under power 6 miles. Apple dynamo, run from flywheel, can be used for ignition and electric light, for which cabin is wired and fixtures in place. A thoroughly seaworthy craft in good condition, having been housed every Winter. Price \$800. Inspectable near New York. Address Yawl, 262 Water Street, New York City.



6601



6610



11269

No. 11269—For Sale—Lawley keel sloop, 56 ft. o. a., 35 ft. w. l., 12½ ft. beam, 8 ft. draught. Owner's stateroom and saloon berth five people; two toilets; mahogany finish. New sails. Completely equipped. Guaranteed in perfect condition throughout. Owner having purchased a larger boat, will sell at a low price. Inspectable near this city. Address Stanley M. Seaman, 220 Broadway, New York City. Telephones 3171 and 3479 Cortlandt.

* * *

No. 6820—For Sale—Flush deck, steam yacht, steel construction, 117 ft. o. a., 95 ft. w. l., 16 ft. beam, 6 ft. 6 in. draught; recently rebuilt and overhauled at large expenditure of money, now in excellent condition; triple-expansion engine, water-tube

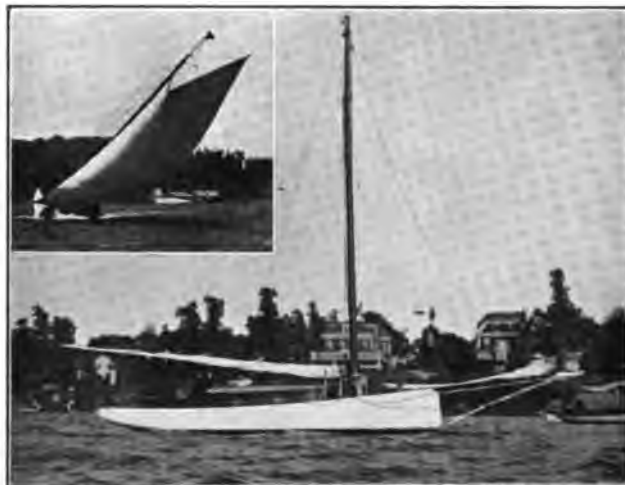


6820

boiler, electric light plant, power tender; speed 12 to 14 knots; large deck dining saloon; sleeping accommodations for eight people. Attractive figure. Communicate with William Gardner, 1 Broadway, New York City.



6602



6611

No. 6602—For Sale—Glass cabin launch, 30x7.6x3 ft. draught—copper fastened throughout. Built by New York Gas Engine & Power Co. and Charles L. Seabury & Co. Finished throughout in mahogany. Toilet, folding basin, running water, ice-box, copper water and gasoline tanks, latter holding 60 gal. Complete inventory, including copper side and head-lights, compass, bell, etc. Two bronze propellers (one special two-bladed weedless), latest type Standard engine in perfect condition. Writer traveled about 2,000 miles in this boat without having engine miss an explosion. Boat has good freeboard and is very able, and has stood lots of heavy weather. Price, \$950. Can be seen at Marine Basin Company, foot Hubbard Street, Ulmer Park. Address Tracy Grey, 117 Warren Street, N. Y. City.

* * *

No. 6611—For Sale—Auxiliary sloop Sprite, 25.4x9.8x3. 10-h.p. self-igniting Fulton engine, new 1911. Cruising speed 7 miles. Boat built by Wallin, Gravesend, in 1905, in A-1 manner. Full equipment for cruising, including cushions, pillows, rug, dishes, stoves, cooking utensils, etc.; anchors, chain and cable. 9-ft. dinghy, oars and rowlocks. J. Ph. Schmitt, 156 Graham Avenue, Brooklyn, N. Y.

* * *

No. 11104—For Sale—Cary Smith centerboard schooner, 66 ft. o. a., 46 ft. w. l., 16½ ft. beam, 6½ ft. draught. Extra heavy construction—mahogany deck trim. New decks. 15 tons lead ballast. Three staterooms and saloon berth seven people; large toilet room; galley, full width of yacht. Commodious foc'sle with five berths for crew—can be run with three men. Headroom 6 ft. 4 in. Complete cruising inventory, including launch and dinghy in davits. A seaworthy cruiser and smart sailer, always well owned and kept up. Low price. Inspectable this city. Apply to Stanley M. Seaman, 220 Broadway, N. Y. City.



11104



6649

No. 6649—For Sale—At very moderate price, strongly built, seaworthy, powerful motor yacht. Equipped with a 57-h.p. Standard motor, which can drive her at good speed. Built in 1905. 54 ft. o. a., 50 ft. w. l., 10 ft. 6 in. beam, 4 ft. 6 in. draught. Cabin has 6 ft. 6 in. headroom and is 21 ft. long; 11-ft. watertight cockpit. Cabin finished in mahogany and is very comfortable; toilet and lavatory. Bridge forward; engine room forward. Cabin can be divided into two staterooms, as there are heavy draperies to divide it if desired. Each of the four transoms pull out, making room for two to sleep comfortably on each transom. This boat is well found in every way, with cooking utensils, lights, three anchors and cables, oil tanks, etc. An exceptionally able and rugged boat. Anyone desiring a substantial, wholesome motor boat should not neglect this

opportunity. Inspectable Taunton, Mass. For permit to examine and further details, apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 6813—Offered for sale to close an Estate. Steel, ocean-going steam yacht, 200 ft. o. a., 165 ft. w. l., 26 ft. beam, 13 ft. draught; built in America from designs of late Geo. L. Watson; triple-expansion engine, Scotch boiler; speed 11 knots. All modern conveniences. Ten staterooms, four bathrooms, dining room, smoking room, library, and chart room. Vessel in splendid condition throughout, with complete cruising outfit. For plans and further details, address William Gardner, 1 Broadway, New York City.



6813



6817

No. 6817—For Sale—Flush deck, designed and built by Herreshoff Mfg. Co.; modern and up-to-date. Suitable for canal passage. Boat and equipment has received best care and attention. Everything in first-class condition. Triple-expansion engine; Herreshoff water-tube boiler. Electric light plant; two boats. Length o. a. 99 ft., w. l. 83 ft., beam 14 ft., draught 5 ft. 4 in.; speed 15 miles. Coal consumption one ton per 100 miles. Deckhouse contains dining saloon. Owner's quarters consists of one single and two double staterooms, bathroom, toilet room, wardrobes, etc. Complete galley and good crew's quarters. Offered for sale on account of owner having built larger craft. Offer desired. For further particulars apply William Gardner, 1 Broadway, New York City.

* * *

No. 6641—For Sale—Unusually attractive cruising sloop, 24 gross tonnage; 62 ft. o. a., 40 ft. w. l., 15 ft. 2 in., beam, 6 ft. 8 in. draught. Has 19,500 lb of lead on keel with small center-board passing through it. 10 ft. 3 in. watertight cockpit; 12 ft. cabin with 6 ft. 2 in. headroom, finished in mahogany; two

staterooms, one double and one single; two toilets. Berths for three men forward. Two boats, one a power tender carried on davits. Large water tanks. This yacht was built by Wood at City Island in 1900 and is as good as the day she was built. A bargain for any one desiring a comfortable modern cruising sloop. Inspectable New Bedford, Mass. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 6650—For Sale—Gasolene launch built by Truscott. 35 ft. o. a., 32 ft. w. l., 8 ft. beam, 2 ft. 8 in. draught. Inspectable near Boston. Cabin has full headroom; toilet room and lavatory. Truscott 15-h.p. motor. This launch is built in the best manner throughout. She has mast and sail sufficient to give steerageway when needed. Very good inventory, including three anchors and cables, best corduroy cushions, air whistle, fog bell, etc. Gasolene tank under after deck. Control so arranged as to place boat and motor handling of one operator on bridge. Reasonable price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6641



6650



11103

No. 11103—For Sale—Centerboard auxiliary seagoing schooner; ideal type for shoal waters, at same time capable of coast cruising. Extra heavy construction throughout. Owner's and guests' quarters commodiously arranged, provide four large staterooms and saloon with two wide transoms, sleeping twelve people comfortably. Two baths with hot and cold and fresh and salt-water connections; four toilets. Quarters afford 7 ft. headroom, neatly finished in white enamel, giving clean, cool and light appearance, lighted by electricity. Staterooms for captain, engineer and steward; five berths in fore for crew, two toilets, etc. Large galley with refrigerator holding 1,000 lb. 100-150-h.p. Standard engine, located aft, separated by watertight bulkhead from main saloon, gives speed of 9 knots per hour. Completely equipped for cruising, including 21-foot mahogany Seabury

launch with 12-h.p. Speedway engine (cost \$2,200), 18-ft., 3-h.p. launch and 16-ft. dinghy in davits. An exceptionally able and comfortable cruiser. Offered at reasonable price. Now in commission at Miami, Fla., and available for charter. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 6742—For Sale—Steel flush deck coast cruiser, 94 ft. o. a., 77 ft. w. l., 14 ft. beam, 5½ ft. draught. Deck dining saloon. Three staterooms for owner and guests and main saloon berthing eight people comfortably. Electric lights. Triple-expansion engine; Almy water-tube boiler; speed 14 miles per hour. Completely equipped, including launch and tender in davits. Economical to maintain. Yacht in first-class condition. Address Stanley M. Seaman, 220 Broadway, New York City.



6742



716

No. 716—Excellent Bargain—Fast keel yawl, 47 ft. o. a., 32 ft. w. l., 11 ft. beam, 7 ft. draught. Built by Herreshoff; in excellent condition. Lead keel. Two suits of sails. Champion of her Class L. I. S. Y. R. A. in 1901, 1902, 1903 and 1905. Has good accommodation. Well found. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 990—For Sale—Raised deck cruiser, 60x13x3.6 ft. Built 1909. Speed 9-10 miles; 25-35-h.p. Standard motor. Large



990

double stateroom, 10-ft. saloon with four berths, bathroom, acetylene lights, etc. Interior finish of white enamel and mahogany. Completely found; including launch and dinghy. First-



1704



6617

class condition. Located on Great Lakes. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 1704—For Sale—Desirable keel and centerboard auxiliary schooner yacht, 67 ft. o. a., 46 ft. w. l., 16 ft. beam, 6.6 ft. draught. Trunk cabin and cockpit. Double and single state-rooms, saloon, etc. Interior finish mahogany, white and gold. Speed under power 7 miles; 25-h.p. Craig motor. Fully found. Fast sailer and excellent sea-boat. Completely overhauled last season at considerable expense. Bargain for quick sale. Apply to Cox & Stevens, 15 William Street, New York City.

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No. 6617—For Sale—The Alice G, 30x9x2.6, raised deck cruiser, with 2-cylinder, 12-h.p. Mianus, Schebler carbureter, Gies gear, 22-in. wheel, speed 8 miles; sleeps four; one-man control; has toilet, galley with stove, and full cruising equipment new last year; nine life-preservers, fenders, cushions, lights, bell, whistle, fire extinguisher, Providence anchor, 300-ft. cable, 150-lb mushroom mooring with 80-ft. chain. Tarpaulin to cover entire boat. A good sea-boat, tight, sound and able. Guaranteed first-class in every respect. Reason for selling, need the money. Now at Marine Basin, Ulmer Park, Brooklyn, N. Y. Can be seen any time. Address White, Box 12, Station S, Brooklyn, N. Y.

* * *

No. 885—For Sale or Charter—Exceptionally handsome fast, steel, twin-screw cruising power yacht, 118x15.6x5 ft. Built, 1910, from our design. Speed up to 18 miles; two 300-h.p. Craig motors. Three double staterooms, main and dining saloons, two bathrooms, electric lights; etc. Handsomely finished and furnished. Probably the most desirable proposition ever offered in a large gasoline yacht; an exceptional opportunity. Apply to Cox & Stevens, 15 William Street, New York City.



885



1251

No. 1251—For Sale—Flush deck auxiliary yawl, 76.6 ft. o. a., 52 ft. w. l., 17 ft. beam, 7.6 ft. draught. Lead ballast on keel. Three staterooms, bathroom, large saloon, etc. Speed under power $7\frac{1}{2}$ miles. Excellent condition. Price attractive. Cox & Stevens, 15 William Street, New York City.

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No. 6—Offer Wanted—Twin-screw steam yacht, 99x17x5 ft. Excellent condition. Large accommodation. Adapted for passenger service. Dimensions allow navigation of Erie and other



6

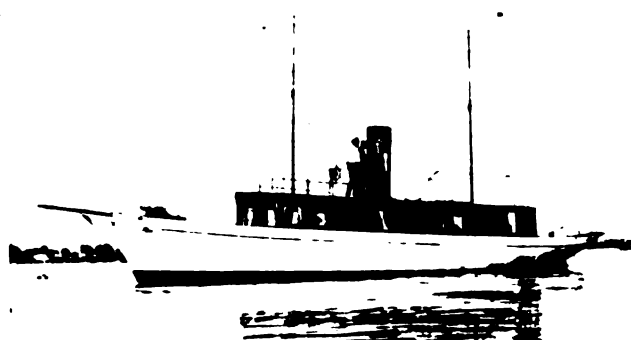
canals. Owner very anxious to sell. Cox & Stevens, 15 William Street, New York City.

* * *

No. 11323—For Sale—Keel auxiliary Cape Cod catboat with self-bailing cockpit, 24 ft. o. a., 21 ft. w. l., 10 ft. beam, 3.4 ft. draught. Designed and built by Crosby, 1901. Cabin berths four. 5-h.p. Lathrop engine; speed $5\frac{1}{2}$ miles. Completely equipped. Elegant cruiser. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.



11323



278

No. 278—For Sale at Low Figure—Cruising motor yacht, 67x10.5x3 ft. Speed 12 miles; 50-h.p. Standard motor. Large saloon and double stateroom forward; galley and engine room aft. Mahogany finish throughout. Fully found. Immediate sale desired on account of owner's death. In excellent condition. Apply to Cox & Stevens, 15 William Street, N. Y. City.

* * *

No. 6506—For Sale—Coast cruiser, 48 ft. o. a., 11 ft. beam, $3\frac{1}{2}$ ft. draught. Built 1910. Extra heavy construction. Stateroom and saloon berth six people; toilet; galley. 30-h.p. Ralaco



6506

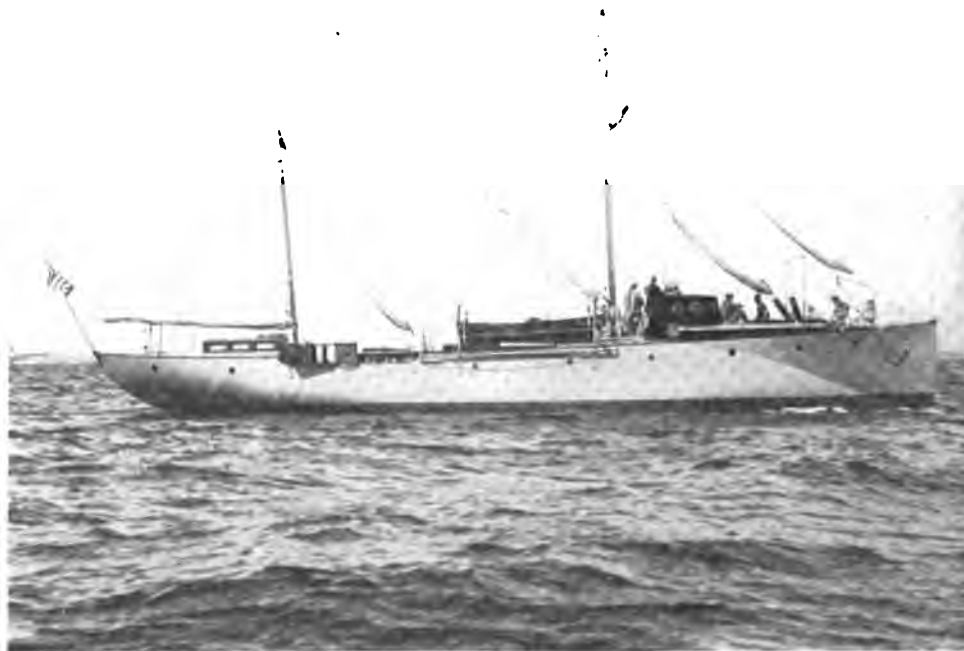
engine, new 1911, gives speed of 11 miles. Complete equipment. Cruised 2,500 miles on Great Lakes. Cost \$5,500; price \$3,700. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 176—Offer Wanted—Flush deck auxiliary schooner yacht, 95x68x20x10 ft. Three double staterooms, bathroom, etc. Speed under power 6 miles; 25-h.p. Globe motor. Ratsey sails, new 1909. Owner very anxious to sell, having larger one built. Cox & Stevens, 15 William Street, New York City.



176



6544

No. 6544—For Sale—Twin-screw flush deck seagoing gasoline cruiser, 75 ft. o. a., 13.3 ft. beam, 5.10 ft. draught. Launched 1909. Extra heavy construction. Steers from deck and pilot house. Owner's quarters aft provide two double and one single stateroom and main saloon, berthing seven people comfortably; bath and two toilets; these are elegantly finished in finest selected African mahogany and richly upholstered, electric lighted and well ventilated. Foc'sle for four men, toilet, etc. Two 65-h.p. Jagers; speed 12 miles. Completely equipped, including launch and skiff in davits. Wilson & Silsby sails. This boat embodies many features not found in the average gasoline cruiser, owner having constantly kept in mind seagoing requirements, which

she has demonstrated satisfactorily. Cost over \$25,000. Reasonable price. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 6815—For Sale—Fast, 92-ft. gasoline yacht; built from my design, with double-planked hull, copper fastened, and mahogany trim; two 4-cylinder Craig motors developing 100-125-h.p. each; speed 18 miles; gasoline tank capacity 1,000 gal. situated in separate compartment; boat and outfit in excellent condition; offered by an estate and low figure will be accepted. For full particulars apply to William Gardner, 1 Broadway, New York City.



6815



18

No. 18—For Sale—Very desirable steel auxiliary schooner yacht, 118 ft. o. a., 80 ft. w. l., 22 ft. beam, 12.6 ft. draught. Built by well-known firm in 1902. Speed under power 8 miles; 6-cylinder Standard motor installed 1909. Accommodations include four staterooms, large saloon, bathroom, etc. All conveniences. In first-class condition. Handsomely finished and furnished; excellent sea-boat. Further particulars, plans, etc., from Cox & Stevens, 15 William Street, New York City.

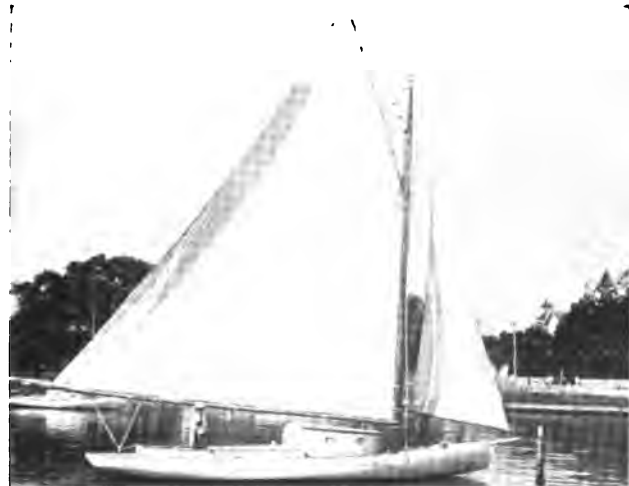
No. 1672—Bargain—31x5-ft. semi-speed canopy top launch. Speed up to 15 miles; 30-h.p. 4-cylinder, 4-cycle "American & British" motor, installed 1910. Comfortable family boat in excellent condition. Engine enclosed in wood and glass case. Full



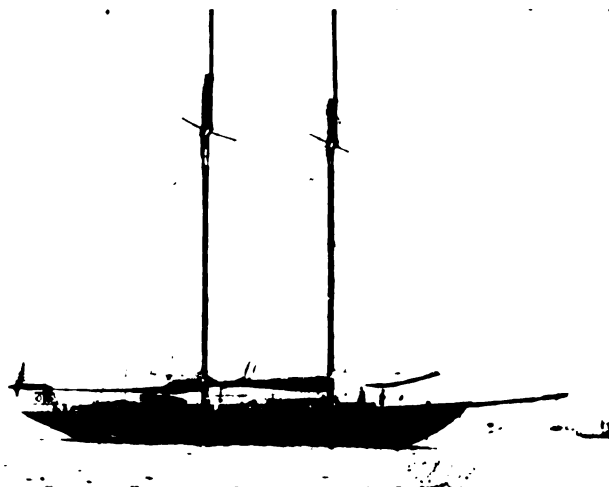
1672

equipment. Owner anxious to sell, having purchased large cruiser through us. Cox & Stevens, 15 William Street, New York City.

No. 6616—For Sale—At a Bargain. Shallow-draught center-



6616



647

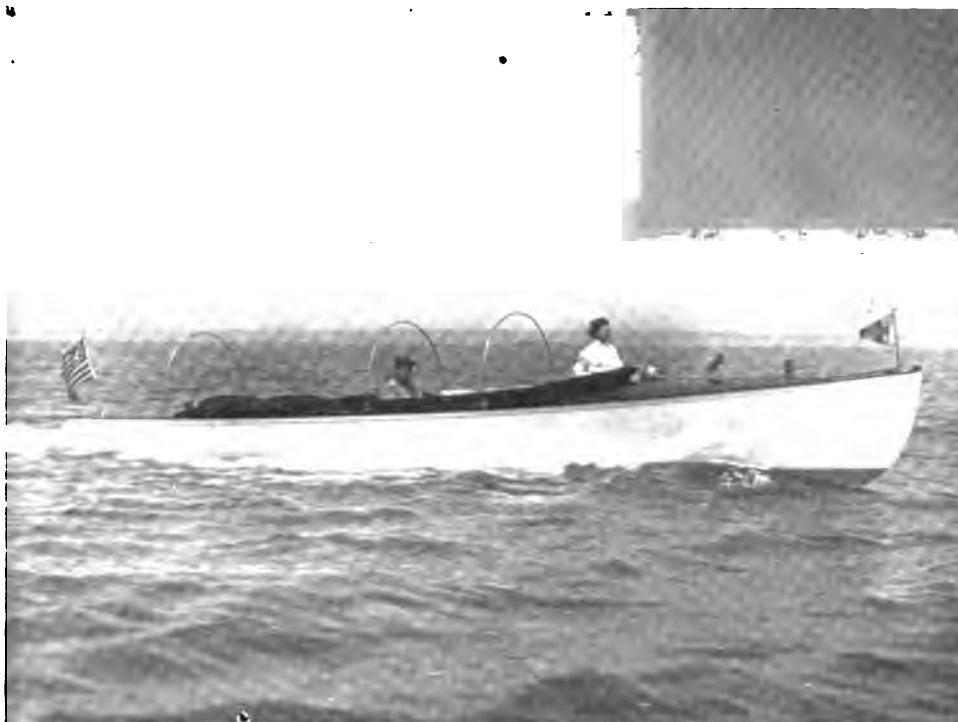
board sloop; length o. a. 32 ft., w. l. 22 ft., beam 10½ ft., draught 20 in. Open Summer cabin with 4½ ft. headroom. Planking 7⁄8-in. cedar, galvanized fastenings; deck painted; hull absolutely sound. Spars and rigging excellent condition. Large cockpit, seating twelve comfortably. Built 1905 by Donley from Chas. D. Mower's RUDDER Knockabout design. A fast, able, seaworthy boat, ideal for day sailing, easily handled by one. Inspectable, Patchogue, Long Island. Price \$350 before going into commission. Apply Room 1112, 103 Park Avenue, N. Y. City.

No. 647—Exceptional Opportunity—Fastest auxiliary (gasoline) schooner yacht under power, 105 ft. o. a., 75 ft. w. l., 24.6 ft. beam, 5.6 ft. draught. Recent build. Three staterooms, two bathrooms, etc. Speed under power 9 knots. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York City.

No. 6620—For Sale or Charter—A single-handed keel auxiliary cruising schooner, Lawley-built—29x9 ft. beam by 4½ ft. Biggest little boat on the Maine coast. Rebuilt in 1909, new mainmast, main jib, topsail and awning. Coal stove, dishes, anchor, sailing and cabin lights; two anchors, life-preservers, deck chair, compass, flag, cushions, mattresses, carpet, curtains. Accommodations: saloon done in white with bright wood trimmings, mahogany table, lockers, galley, sliding door between (separate hatchway). Sleeps six. Speed under power 5 miles. Engine is a wonder. An ideal boat for a man who desires to cruise inexpensively. Has been from Florida to Bar Harbor. Price to quick purchaser \$450. Dr. Eugene L. Swan, 143 St. James Place, Brooklyn, N. Y.



6620



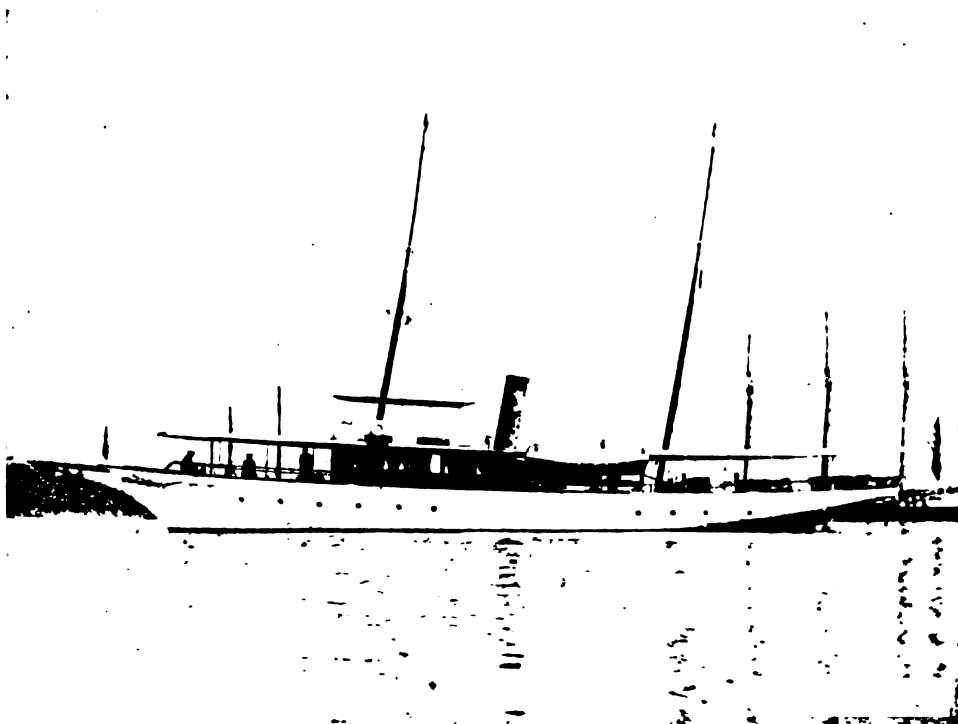
6618

No. 6618—For Sale—Judy IV, 33x6x2.6 ft.; cedar planking—copper riveted, oak frames and knees—mahogany decks. 24-h.p. Jager engine giving maintained speed of 18 knots. A fast, silent and able day-boat whose unusual freeboard makes her dry and comfortable at all speeds. Has cruised from Marblehead to Provincetown, and can round Cape Cod safely in a fair chance. Good looking, dependable and seaworthy. William Wallace, 70 Kilby Street, Boston, Mass.

* * *

No. 2862—For Sale—Steam coast cruiser, 115 ft. o. a., 90 ft.

w. l., 17½ ft. beam, 7 ft. draught. Extra heavy construction. Thoroughly rebuilt by Bayles & Son, Port Jefferson, L. I., and practically made new. Owner's quarters forward consist of three staterooms, saloon with two transoms, and bath. Galley full width of yacht. Modern conveniences—electric lights, steam heat. Compound engine; Roberts' boiler; speed 12 to 13½ miles. Completely equipped for cruising, including launch and gig in davits. Exceptionally able sea-boat, offering spacious deck room. Spot cash \$5,000. Genuine bargain. Address Stanley M. Seaman, 220 Broadway, New York City.



2862



6615

No. 6615—For Sale—At Big Sacrifice, modern hunting cabin cruiser, 32x8 $\frac{3}{4}$ x2 $\frac{1}{2}$ ft., with 12-16-h.p. Standard motor; built, 1910, from E. B. Schock's plans for outside cruising. Frames natural crook; everything very strong and in first-class order. Boat at G. Bishop's shipyard, River Avenue, Patchogue, Long Island. Price \$1,200; cost \$2,000. For full particulars, write owner, Henry Edey, Bellport, Long Island, N. Y.

* * *

No. 374—For Sale—Fast gasolene cruiser, 70x10x3.6 ft. Speed 14-16 miles; 75-h.p. 6-cylinder Speedway motor (installed 1911). Independent electric lighting plant. Two staterooms, saloon,



374

two toilets, etc. Finished in white enamel and mahogany. Full equipment (considerable portion new 1909). Substantially con-



6613



6612

structed hull. All motor controls on bridge. Price very low. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 6613—For Sale—Latest type seagoing cruiser, 40 ft. o. a., 9 ft. beam, 3 $\frac{1}{2}$ ft. draught. Built 1911 at cost of over \$6,000. Not run over 200 miles since launched. Bridge steering gear and engine control. Extra heavy construction—copper riveted. Brass deck trim. Stateroom and saloon berth six; three toilets. Electric lights. Headroom 6.3 ft. Galley, full width of boat. 48-72-h.p., 6-cylinder, 4-cycle engine; Bosch magneto and Delco ignition; speed 12 miles. Completely equipped. Capable any sort cruising. Will be sacrificed for quick sale. Inspectable New York. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 6612—For Sale—Launch Trimount, 27 ft. o. a., 5 ft. beam; fine, fast lines; just the boat for river or inland lake use, as draught can be made only 18 in. In good second-hand condition; will sell hull only without engine for \$350. Cost new \$1,200. Gasolene tank, engine bed, stuffing-box, strut and rudder all fitted in place. A bargain at the price. Can be seen at Lawley's, Neponset, Mass. A. B. McKechine, 13 Custom House Street, Boston, Mass.

* * *

No. 6783—For Sale—Modern cruiser, launched 1910, 40 ft. o. a., 10 ft. beam, 3 ft. draught. Cockpit 10 ft. long. Steering gear and engine controls in pilothouse and cockpit. Pilothouse and saloon berth four; toilet; galley. Engineer's berth. 6.2 ft. headroom. Mahogany interior, lighted by electricity. 28-h.p. Campbell motor, gives speed of 10 miles. Completely equipped, including tender in davits. Wholesome type of family cruiser. Fine light and ventilation. Reasonable price. Address Stanley M. Seaman, 220 Broadway, New York City.



6783



6608

No. 6608—For Sale—Knockabout Dixie, 33 ft. o. a., 21 ft. w. l., 8.6 ft. beam, 3.6 ft. draught. Outside ballast 3,000 lb iron; cedar planked, mahogany trimmings, brass fastened throughout, and very sound. Sails, rigging, round-bottom tender, mushroom anchors, etc., in perfect condition. Good cabin accommodations; easy to handle and very able. A splendid all-around boat and just the craft for the person looking for a cruiser. Can be seen at the Savin Hill Y. C. Investigation worth while; price reasonable. For particulars address R. Turner, 54 Grampian Way, Dorchester, Mass.

No. 6614—For Sale—Raised deck cruiser of most exceptional merit; length 25 ft., beam 8 ft. White oak frames, timbers, etc., cypress planking, copper and bronze fastenings. 70-gal. heavy copper gasoline tank sets in pan, draining overboard in bow, water tank aft. 12-h.p., 1911, 2-cylinder Lathrop, Paragon reverse gear, all controls at steering wheel. Self-bailing cockpit, roomy cabin. Designed and constructed for cruising in Cape Cod waters, she is an unusually able heavy-weather boat. Equipment complete, the best of everything. Launched May, 1911; offered now because owner is building large cruiser for different waters. Price, photos, full particulars upon request. Richard H. Bunce, Middletown, Conn.

No. 6606—For Sale—Bungalow houseboat, 53x25 ft., 16 in. draught, built of brown stained shingles, with white trimmings. Veranda all around; in front is 20x10 ft. wide. Living room 20x15 ft.; hardwood floors, two bay windows. Screens for all windows and doors. Bunks for eight in two bedrooms. Good closet room. Bathroom with fresh-water shower, furnished by force pump from rain-water tanks in roof and scow. Good-sized kitchen. Boat in splendid condition. Can be seen any time. Address G. B., Care Carrier 717, North Postal Station, Boston, Mass.



6614



6606

No. 1376—For Sale—Splendid combination day-boat and cruiser, 38x8.9x3 ft. Built, 1910, from our design; best construction. Teak finish throughout. Speed 11 miles; 30-h.p. 4-cylinder, 4-cycle motor, electric lights, etc. Cockpit 10 ft. 6 in.



1376

long; saloon 6 ft. 6 in. long with two transoms, toilet room, etc. Fine sea-boat; in first-class condition. For plans and further particulars, apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 6644—For Sale—Very fast 25-footer; 50 ft. o. a., 12 ft. 6 in. beam, 6 ft. 6 in. draught. One of the best cruising sloops on the Atlantic coast. Very large cabin, with four berths, four transoms, toilet, ice-chest, etc. Two bunks for crew forward. Roomy watertight cockpit. Outside ballast, all lead. This yacht is a great prize winner and will make a name for herself wherever she may go. Inspectable Camden, Me. Will sell at bargain figure, or trade for good 40-ft. motor boat. Will also consider taking small racing boat, preferably a Sonder boat in part payment. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6644



6619

No. 6619—For Sale—Judy V, 34.6x8x2.6 ft. A notable boat of 1911. Designed primarily for seagoing qualities, she follows closely the model of the Government Life-Saving Service's motor boats. Six times around Cape Cod in bad weather besides constant cruising offshore and on the Rips around Nantucket, all without engine trouble or the slightest injury to hull, justified her builder's hopes. Her construction is the best, cedar planking, copper riveted, oak frames and knees, a 25-40-h.p. Sterling engine; speed 10 miles with no vibration. Forward is large locker, next toilet with Sands' w. c. and basin; next berths for four; next engine with ample space to get at it; next watertight self-bailing cockpit with gasoline tanks (400 miles capacity) under seats. Aft is galley with lockers, stove, large ice-box, next steering gear, very accessible. Galley aft gives absolute freedom from cooking odors in cabin. Steering gear, spark, throttle and clutch lever under hand of man at wheel. A good, honest, able boat that will get there and won't drown you. Owner building 44-ft. craft of same model. William Wallace, 70 Kilby Street, Boston, Mass.

No. 6642—For Sale—Cruising yawl, 49 ft. 6 in. o. a., 33 ft. w. l., 14 ft. beam, 6 ft. draught. Very roomy cabin, finished in mahogany and white, with full headroom. Wilson & Silsby sails. Full cruising inventory, including mahogany tender, binacle. Edson steering gear and mahogany wheel, complete set of cooking utensils, large ice-chest, etc. This yacht has always had the best of care. Bargain price of \$800. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 6603—For Sale—For quick sale at \$600, fine auxiliary catboat, in best possible condition; 25½x10x3 ft. Built by one of the best builders between Providence and New York. Heavy white oak timbers, staunch and able. Cabin sides, seats, combing and deck bright. Lathrop 8-h.p. motor with expansion tank and underwater exhaust. Roomy cabin with heavy cushions, cabinet, Sands' toilet, etc. Well. Full inventory, lights, life-preservers, two anchors, 450-ft. new cable, awning, sail cover, etc. Can be seen here. Address J. H. Blackman, 47 Perry Street, New London, Conn.



6642



6603



6438

No. 6438—For Sale—A modern beautiful and floating home, fully furnished—steam laundry, drying room, steam heat, electric lights, etc.; 130 ft. o. a., 30½ ft. beam, 6 ft. draught. Extra heavily constructed. Owner's quarters below provide five double and three single staterooms and three baths, toilets, etc. Running hot and cold water in all rooms. Dining saloon. Smoking and music rooms (piano) on deck. 350-h.p. triple-expansion engine; Almy water-tube boiler; large fuel capacity; speed 12 miles. Completely equipped for cruising, including four tenders in davits, steam windlass and capstan, fresh-water tanks—capacity 5,000 gal. One of the most successful craft of character extant, offering maximum comfort at minimum cost of maintenance—run with crew of twelve. Capable any sort cruising. The only boat of her class on the Great Lakes. Cost over \$60,000. Bargain. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 481—For Sale or Charter—Twin-screw cruising power yacht, 93x13.6x4.6 ft. Speed 14-16 miles; two 100-h.p. 6-cylinder Standard motors. Best construction; mahogany finish throughout. Double stateroom, bathroom, large saloon and galley, etc. Electric lights. In excellent condition. Owner anxious to sell, having built larger. Apply to Cox & Stevens, 15 William Street, New York City.



481

No. 1392—For Sale—Catboat, 26 ft. o. a., 9 ft. beam, 1 ft. 10 in. draught. Summer cabin with two transoms; headroom about 4 ft. 6 in. Mainsail new Fall, 1909. In excellent condition.



1392

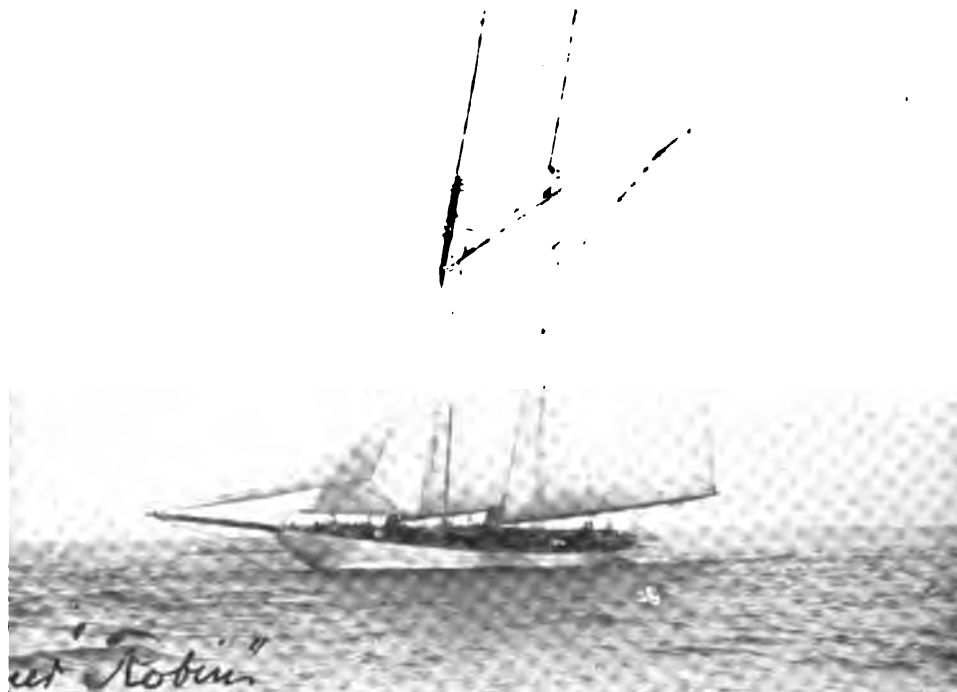
Has won numerous races. Very able and good sailer. Bargain for quick sale. Cox & Stevens, 15 William Street, N. Y. City.

* * *

No. 14—Bargain—Steel steam yacht, 94x14x6 ft. Exceptionally fine sea-boat; excellent condition. Speed 12-14 miles. Three staterooms, large dining saloon, etc. Full particulars, plans, etc., from Cox & Stevens, 15 William Street, New York City.



14



11321

No. 11321—For Sale—Centerboard and keel flush deck auxiliary coast cruiser, 88.4 ft. o., 63 ft. w. l., 18.4 ft. beam, 8½ ft. draught. Built, 1902, by Robert Jacob, City Island. 24 tons lead ballast. New centerboard, 1911. Owner's quarters aft provide three staterooms and saloon berthing eight people comfortably, beautifully finished in Mexican paneled mahogany and white enamel, giving 6½ ft. headroom. Well lighted and ventilated. Captain's room; large galley. Foc'sle for six men, toilet, etc. 25-h.p. "20th Century" engine, installed 1907, gives speed of 6 miles per hour. Heavy copper gasoline tanks allow cruising radius of 200 miles. Unusually well equipped for cruising, including launch gig and dinghy in davits. New Lawley masts and Wilson & Silsby sails, 1911. Considered one of the handsomest craft of the character available. Always well owned and is today in first-class condition. Cost nearly \$25,000. Price low. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 241—For Sale—Very able and roomy auxiliary yawl, 60 ft. o. a., 40 ft. w. l., 15.6 ft. beam, 5.6 ft. draught (without centerboard). Built 1903. Speed under power 8 miles; 25-35-h.p. Standard motor. Double stateroom, saloon, bathroom, etc. First-class condition. Price low. Apply to Cox & Stevens, 15 William Street, New York City.



241

No. 1670—For Sale—31x8-ft. raised deck cruiser. Built 1908. Speed 9 miles; 15-h.p. 4-cylinder, 4-cycle Buffalo motor. Cabin 7 ft. long with two berths, toilet room, etc. Electric lights;



1670

9-ft. dinghy. In excellent condition. Bargain. Cox & Stevens, 15 William Street, New York City.

* * *

No. 256—Sacrifice—Fast cruising motor yacht, 74x11x4 ft. Speed 15-16 miles; 100-h.p. 6-cylinder Speedway motor installed Fall, 1910. Forward saloon, stateroom, separate galley, etc. Large after deck and bridge. Mahogany finish. In first-class condition. Fully found. Must be sold. Apply to Cox & Stevens, 15 William Street, New York City. Telephone 1375 Broad.



256



470

No. 470—For Sale at Low Figure—Raised deck gasoline cruiser, 60x12x3.6 ft. Very substantially constructed; copper fastened. Speed 11 miles; 40-h.p. 4-cylinder, 4-cycle Lamb motor (installed 1910). Independent electric lighting plant. Large gasoline and water capacity. Accommodations include double and single stateroom, 10x12-ft. saloon, etc. Joinerwork of solid mahogany throughout. Motor completely controlled from bridge. Unusually large deck and cabin accommodation. Well ventilated throughout. Toilet room 6.6x4 ft. Engine room, galley and crew's quarters forward; owner's quarters aft. Large ice-box, coal range, etc., in galley. Unusually complete inventory. Most of equipment new 1910, including awnings, water tank, electric plant, etc. In first-class condition throughout; a fine sea-boat and very comfortable. For plans and further particulars, apply to Cox & Stevens, 15 William Street, New York City. Telephone 1375 Broad.

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No. 6647—For Sale—At a Great Sacrifice. This fast, roomy Sonder boat was built in 1906 from designs of Small Brothers. Won the Quincy Cup in 1906. 37 ft. o. a., 19 ft. 6 in. w. l., 7

ft. beam, 5 ft. draught. Outside lead ballast. Sails made by Ratsey & Lapthorn in good condition. She is exceptionally comfortable for a boat of this type and can be easily managed single-handed. A fine boat for either afternoon sailing or racing. Will be rigged and launched free of charge. Inspectable on Buzzards Bay, where she has been raced successfully. Genuine bargain. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

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No. 6643—For Sale—Very desirable auxiliary single-hander. A splendid craft for long or short cruises. Built in 1904. 34 ft. 6 in. o. a., 21 ft. w. l., 10 ft. 6 in. beam, 3 ft. 6 in. draught. 2,900 lb outside ballast with centerboard passing through keel. Combines the advantages of moderate draught with great stability. Cabin is 13 ft. long with 5 ft. 6 in. headroom. Sands' w. c. Sails in fine condition, 728 sq. ft. in area. Equipped with a 4½-h.p. 1910 Knox motor, giving her a speed of 5 knots an hour. Complete equipment, including tender. Inspectable near Boston. Moderate price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6647



6643



6816

No. 6816—For Sale—Attractive Seabury-built steam yacht, 130 ft. o. a., 109 ft. w. l., 17 ft. beam, 6 ft. 5 in. draught; triple-expansion engine, water-tube boiler; electric light plant; steam heat, steam windlass; speed 15 miles; two deckhouses, three double and two single staterooms, excellent bathroom facilities; carries three boats and power tender. Boat handsomely fitted and furnished, and in A-1 condition. For sale or charter. Further particulars from William Gardner, 1 Broadway, New York City.

* * *

No. 694—For Sale—Healthy type English sea cruiser, 127 ft.

o. a., 104 ft. w. l., 18 ft. beam, 10 ft. draught. Iron hull. New teak decks and steel bulwarks, 1907; new deckhouse, 1909. Deck dining saloon accommodating twelve people comfortably. Smoking room at after end. Three staterooms below accommodate eight people; each room fitted with wash-basin and conveniently located to bath. Headroom over 7 ft. Electric lights; steam heat. Triple engine; Roberts' boiler retubed 1911; speed 10 to 12 knots. Completely equipped. An exceptionally able sea-boat, has crossed Atlantic twice and made many cruises to the West Indies demonstrating fine sea qualities. Price reasonable. Address Stanley M. Seaman, 220 Broadway, New York City.



694



544

No. 544—Unusual Bargain—Twin-screw gasolene cruiser, 65x14x4 ft. Speed 11½ miles; two 40-h.p. 4-cylinder, 4-cycle Globe motors (new 1908). Large accommodations include forward and after saloons (latter 12x10 ft.), double stateroom, etc. Interior finish Honduras mahogany, butternut and white. Stateroom 12x8 ft. fitted with two double beds. Electric lights, dynamo, etc. Gasolene tanks 550-gal. capacity. Complete inventory, including launch and dinghy (both cedar and mahogany). All fittings of brass or bronze. Very able, comfortable and roomy cruiser. Large deck space. In first-class condition, having always had best of care. Steers from bridge and pilot-house. Best bargain on market for yacht of her type, size and condition. For plans and further particulars, apply to Cox & Stevens, 15 William Street, New York City. Telephone 1375 Broad.

* * *

No. 1267—Excellent Bargain—Well-known flush deck, steel, schooner yacht, 120 ft. o. a., 90 ft. w. l., 23 ft. beam, 10.2 ft. draught. Designed by A. Cary Smith and has won large number of races. In first-class condition. Accommodations include owner's large double stateroom, three guests' staterooms, two bathrooms and four toilet rooms. Probably the best known sailing craft of her size in these waters. Owner anxious to sell, having recently purchased larger. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 6811—For Sale—Modern and comfortable home, 40 ft. long, 14 ft. beam, 12 in. draught. Fine light and ventilation provided. Headroom 7½ ft. Upper deckhouse contains four staterooms—owner's room full width. Living room, dining room, galley, toilet and pantry in lower deckhouse. Extra



1267

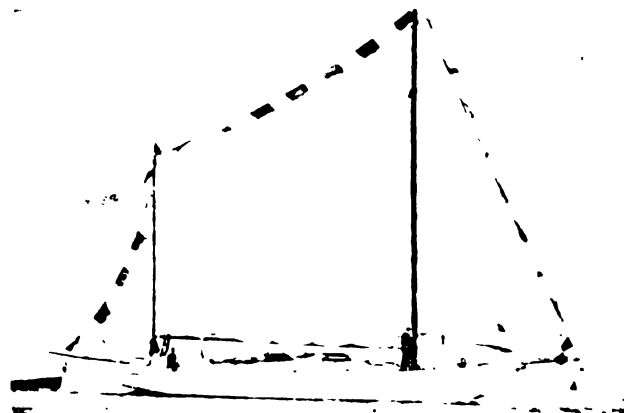
heavily constructed. Completely furnished, including 15-ft. 3-h.p. launch and 17-ft. skiff. An ideal type for family use. All win-



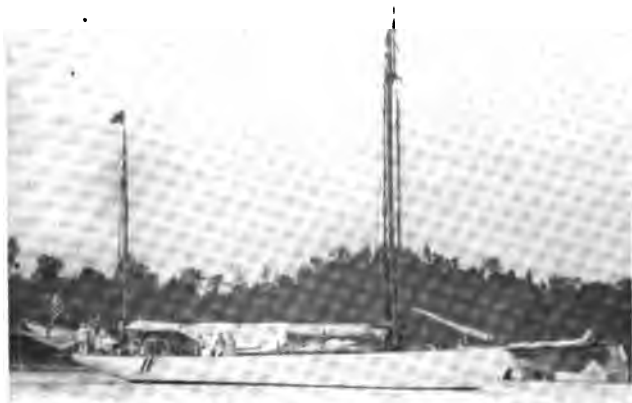
6811

dows French paneled and hinged at top. Price reasonable. Apply to Stanley M. Seaman, 220 Broadway, New York City.

No. 483—For Sale—Especially desirable shoal-draught auxiliary yawl, 54 ft. o. a., 35 ft. w. l., 15 ft. beam, 3.3 ft. draught. Built in best manner by well-known firm. Double stateroom, large saloon with two berths and two transoms, etc. Speed under power 7 miles; 16-h.p. Globe motor installed 1909. Acetylene lights. Sails new 1910. In first-class condition. Best shoal-draught cruiser of her type available. Cox & Stevens, 15 William Street, New York City.



483



1554

No. 1554—For Sale—Desirable keel and centerboard cruising auxiliary yawl, 67.6 ft. o. a., 49 ft. w. l., 16.6 ft. beam, 6 ft. draught. Built 1902. Lead ballast. Double and single state-room, saloon with four berths, bathroom, two toilets, electric lights, etc. Interior finish mahogany and white enamel. Speed under power 6 miles; 4-cylinder, 4-cycle motor. In first-class condition. Comfortable, roomy and able cruiser. Located on Great Lakes. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 6701—For Sale—Hunting cabin cruising launch, 33½ ft. o. a., 8½ ft. beam, 2.10 ft. draught. 9-ft. cockpit contains steer-



6701

ing gear and engine control forward. Copper fastenings. Cabin berths four people; toilet room; galley. Berth forward for



6834



6764

man. 6 ft. headroom. 15-h.p. Buffalo, entirely rebuilt 1910. Speed 9 miles per hour. Completely equipped for cruising, including round-bottom cedar tender in davits. New khaki side curtains, 1910. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 6834—For Sale—Single-handed cruiser, 33½ ft. o. a., 8.4 ft. beam, 3½ ft. draught. Launched 1908; now in first-class condition. Cockpit steering gear and engine control. Bridge deck between cockpit and cabin. Three berths; toilet; galley. Headroom 5.10 ft. 18-23-h.p., 4-cycle Hall engine, new 1910; speed 10½ miles per hour. Fully equipped, including 11-ft. tender. Very able cruiser. Price reasonable. Address Stanley M. Seaman, 220 Broadway, New York City.

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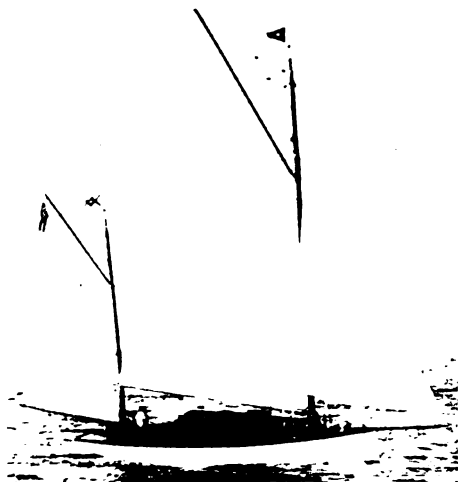
No. 6764—For Sale—Single-handed raised deck cruiser, launched 1910, 28.4 ft. o. a., 7 ft. beam, 2.8 ft. draught. 8½-ft. cockpit contains steering gear and engine control. Cabin berths four; toilet; galley. Electric lights. 10-h.p., double-cylinder engine; speed 9 miles. Completely equipped. Very able sea-boat. Reasonable price. Apply Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 11225—For Sale—Centerboard and keel cruising sloop, 36x24x10½x3. Designed and built by Read Bros. Self-bailing cockpit. Heavy construction. Cabin berths four; toilet room; galley. Berth in foc'sle. Headroom 5.10 ft. Completely equipped, including tender. New sails, 1910; compass. Interior furnishings, etc. Very able and seaworthy. In first-class condition throughout. Low price. Apply Stanley M. Seaman, 220 Broadway, New York City.



11225



6645

No. 6645—For Sale—Auxiliary yawl, 36 ft. o. a., 26 ft. w. l., 11 ft. beam, 3 ft. 8 in. draught. Built in 1902 in the very best manner. Outside ballast, 4,000 lb., with centerboard passing through it. Watertight cockpit 8 ft. long. Comfortable cabin, finished in mahogany, 13 ft. long with 5 ft. 10 in. headroom. Toilet, wide transoms, berth, etc. Equipped with a 4-h.p. Sagamore motor, which can drive her 5 miles an hour. Two suits of sails, made by Wilson & Silsby and Cousens & Pratt, one suit new in 1909. Complete set of cushions, dishes, compass, ice-chest, tender, two anchors and cables, etc. Inspectable near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 31—Offer Desired—96x16.6x4.2 ft. twin-screw passenger motor yacht. Speed 12 miles; two 50-h.p. Murray & Tregurtha

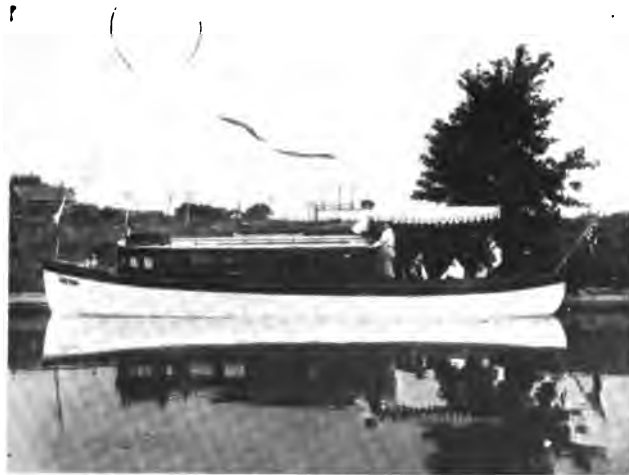


31

motors. Mahogany finish throughout. Owner anxious to sell. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 6225—For Sale—Coast cruiser, 42 ft. o. a., 8½ ft. beam, 2 ft. 9 in. draught. Fine light and ventilation. Large cockpit



6225



6607

with steering gear and engine control at forward end. Cabin berths four people comfortably; toilet room; galley; electric lights; headroom 6 ft. 4 in. 20-h.p. Doman engine gives speed of 10 miles per hour. Complete cruising inventory, including steel canoe. Fine sea-boat, in first-class condition. Inspectable Oshkosh, Wis. Price \$1,700. Will be delivered Atlantic Coast between Portland, Me., and Baltimore, Md., for \$1,800. Apply to Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 6607—For Sale—At a very reasonable price, attractive cruising launch, in best condition, 24 ft. o. a., 6.6 ft. beam, 2 ft. draught. Two and a half years old. Selected oak keel, stem, and frames; cedar planking, copper fastened throughout. Has 8-h.p. 2-cylinder Gray engine with reverse gear. All controls close to wheel. Speed 8 miles. Cabin and toilet finished in cypress. Roomy cockpit with stationary awnings and new side curtains. Inventory includes stove, anchor, cable, lights, whistle, compass, etc. Insured until August, 1912. Has cruised Long Island Sound in all kinds of weather. J. Harvey Dauphinee, Glen Cove, L. I.

* * *

No. 11143—For Sale—Keel flush deck seagoing cruiser, 67 ft. o. a., 51 ft. w. l., 16.5 ft. beam, 7½ ft. draught. 10 tons lead ballast. Extra heavy construction. Stateroom and saloon berth seven people. Captain's room; foc'sle for three men. Unusually complete and handsome inventory, mostly all new. Sails, mizzenmast and launch tender new 1910. Launch tows yacht 4 knots per hour. Over \$4,000 spent recently in permanencies. An excellent sea-boat and tight. Cruised from New York to Bay of Fundy. Owner, anxious to sell, will consider any reasonable offer. Address Stanley M. Seaman, 220 Broadway, New York City.



11143



6575

No. 6575—For Sale or Charter—70-ft. modern raised deck cruiser, Twentieth Century 4-cylinder 9x10-in. motor located between watertight bulkheads amidships. Two double state-rooms and toilet room aft. Forward large dining saloon and galley. Two folding berths at sides of dining saloon. Steers from bridge deck amidships. Cockpit forward of engine space. Two copper gasolene tanks below; capacity for 400 miles. Hull double planked and copper fastened. Inventory complete. Crew one to three men, depending on character of service. Price low. Inquire Morgan Barney, New Bedford, Mass.

* * *

For Sale—Probably the prettiest raceabout of her size in Cape Cod waters, 27 ft. o. a., 17 ft. w. l., 3 ft. 6 in. draught, designed and built by Small Brothers in best possible manner; double planked of cedar, copper fastened, lead fin and bronze centerboard. Sails in perfect condition, mainsail, spinnaker, balloon jib, reaching jib and two tacking jibs. Original cost, \$1,400, but is offered for sale at a low price. Inspectable at the Crosby boatshops, Osterville, Mass. Reason for selling, owner going abroad. For price and all further information, apply to Frederic L. Day, 28 Vanderbilt Hall, New Haven, Conn.

* * *

No. 6582—For Sale—Houseboat Indian, 12x26 ft. Built in Spring of 1911. Used only three months; has three rooms,

plenty of closet room. Furnished in Mission including Davenport, sideboard, two tables, six chairs, two rockers, folding couch and full size bed in stateroom; ice-box, three-burner stove, full set of dishes and cooking utensils, lamps for every room and chandelier in dining room; one rowboat 14 ft. long. 400 lb mooring and chain; running water in stateroom, kitchen and toilet. Entire outfit is brand new; will be in full commission about middle of May and can be bought at a bargain for cash. Boat can be seen and inspected at Knickerbocker Y. C., Port Washington, L. I., or address Chas. L. Carson, Belasco Theatre, New York City.

* * *

No. 6568—For Sale—Power tender 13.6 ft. long by 4.6 ft. beam. Built by Fyfe & Hitdorf at Glenhead, L. I. Used one season. Extra well constructed of oak and cedar, copper fastened. Bilge is floored with well amidship (removable cover) for pumping. 3-h.p. Mianus engine, Schebler carbureter, 5-gal. copper gasolene tank and connections. This tender is very well balanced, and has been towed for five hours beating against a 20-25-mile Sou'wester off Provincetown, Mass., taking less than two inches of water inside for the entire time. A plain, substantial craft, practically as good as new; would make a good auxiliary for any 30 to 50-footer. Cost \$275; price \$160 cash. Located New York City. F. E. Friedrichs, 770 St. Nicholas Avenue, New York City.



6582



6568



6658

No. 6658—For Sale—Modern sloop yacht, designed by Ferris and Cary Smith and built by Rice Bros. at East Boothbay, Me. 43.5 ft. o. a., 30 ft. w. l., 12.6 ft. beam, 7.3 ft. draught. 11,500 lb ballast on keel. Full headroom in cabin which has four berths. Very large and comfortable, with pneumatic mattresses and two cushions. Pipe berth in galley for captain. Fine folding lavatory; toilet room forward; large ice-chest and much locker room. Shipmate range, alcohol and kerosene stoves, and heavy curtains for staterooms. Bright deck in good condition, recalced recently. 80-gal. water tank under cabin floor. Exceptionally complete outfit, including power tender, 13.6 ft. long, with 2-h.p. Boothbay gasoline engine with electric whistle, and 2-cylinder, 2-cycle, 15-h.p. engine in fine condition, which runs the yacht at 6 miles per hour, with air tank and whistle. Hull perfectly tight and yacht and inventory in perfect condition. This yacht has been put away for the Winter in the most thorough manner and every part of hull and belongings put in perfect order, so she can be put in commission at lowest possible expense. Inspectable near Boston. Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 6580—For Sale—Wink; built by Herreshoff Mfg. Co.,

1911, from design by N. G. Herreshoff, 34x20x4.10. Built of mahogany, finished bright all over, hollow spars. Two new suits racing sails. Won championship of Class S, Gravesend Bay, 1911. First prize Atlantic Race Week and second prize Lipton Cup Series, winning two firsts in three races. Changes made by Herreshoff this Winter make her faster than ever. My only reason for selling is that I have moved away from the water. Perfect one-man boat for day sailing. D. G. Whitlock, 1 Liberty Street, New York City.

* * *

No. 6567—For Sale—37-footer, Jessie L, 8.6x3 ft., designed and built by one of highest class builders, July, 1910; been run about 1,000 miles. Mahogany finish; over 6 ft. headroom throughout; cedar planked to water-line, hard pine above, copper fastened; sleeps six persons comfortably. Equipped with 20-30-h.p. 4-cylinder Murray & Tregurtha engine; controls at bridge; speed 10 to 12 miles per hour; very strongly built and everything entering into her construction is of the very best; extra well found and up-to-date; electric lights, searchlight; extra good sea-boat. Can be seen at Bath, Me. Low price. F. R. Knowlton, owner, West Acton, Mass.



6580



6567



6659

No. 6659—For Sale—Crack racing 18-footer, one of the very fastest in the famous 18-ft. class, 31 ft. o. a., 17.1 ft. w. l., 7.1 ft. beam, 5.2 ft. draught. Built in 1904 in best manner by Fenton in Manchester, Mass., from designs of Boardman. Has small cabin house and watertight cockpit. The boat is in perfect condition and has two sets of sails, two anchors and cables. This little yacht is most desirable for short cruises, racing or afternoon sailing and is for sale at a very reasonable figure. Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 2917—For Sale—Excellent craft for fast ferry service; twin-screw; 60 ft. o. a.; speed up to 24 miles. Designed and built by Seabury; two 100-h.p. Speedway engines; double cedar



2917

planking. The joiner work throughout is mahogany. Requires but three men to manage. Is as good as new, and for sale at a great bargain. Gielow & Orr, 52 Broadway, New York City.

No. 2362—For Sale or Charter—Roomy and desirable, single-screw, flush deck, steam yacht. Very economical to oper-



2362

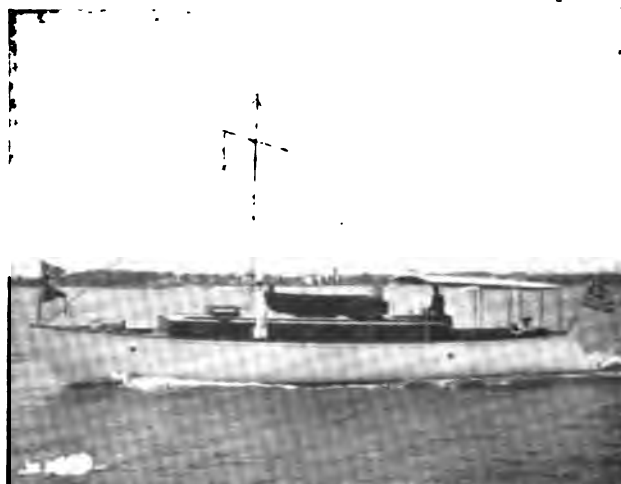


774

ate. 106 ft. o. a., 86 ft. 4 in. w. l., 17 ft. 4 in. beam, 5 ft. 9 in. draught. Speed up to 15 miles. Built 1905 from our plans. Has been well kept up. Dining saloon in deckhouse, aft of which is galley under raised steering bridge. Storerooms and forecabin below forward. Aft of machinery space is large dressing room and toilet followed by two staterooms, then the main cabin, and furthest aft two more staterooms and toilet. Triple-expansion engine; water-tube boiler. Electric lights. First-class inventory. Prices, plans, etc., from Gielow & Orr, 52 Broadway, New York City.

No. 774—For Sale—35-ft. speed runabout, 4 ft. 6 in. beam, 2 ft. draught. Built, 1908, in the best possible manner. Equipped with 25-h.p. Ferro motor, giving a normal speed of 16 miles. Has always had the best of care and is in excellent condition throughout. Price very attractive. Apply to Krogman & Purdy, 92 State Street, Boston, Mass.

No. 2273—For Sale—Able and roomy cruising launch, 52x10x 3.6 ft. draught. Forecabin forward with toilet, followed by stateroom with Pullman berth on either side; following this is main cabin fitted with Pullman berth on either side, also contains lockers, sideboard, etc., large table in center and skylight over. Next aft is the engine room and galley, with companionway to cockpit, which is 13 ft. long. Engine 4-cylinder Craig, 25-30-h.p.; consumes 3 gal. of gasoline per hour at a cruising speed of 11½ knots. Mahogany finished throughout. High freeboard. Low mahogany trunk with 18-in. deck on each side. Plans and further particulars from Gielow & Orr, 52 Broadway, New York City.



2273



6633

No. 6633—For Sale—Tanya, 40x26x10x6; designed by Crown-inshield, built by Graves. An ideal type of fast cruising knock-about, combining speed and excellent accommodations. Won sixteen prizes last season, including "series prize" at Larchmont, also \$500 Dewar Shield. Cruised from Maine to New York and is very able and seaworthy. Built in best manner, and extra strong; oak frames, cedar planked, copper fastened; 6,000 lb outside ballast; cabin finished bright; cockpit, skylight, hatches, etc., mahogany. Large cockpit, roomy cabin, full headroom, sleeps five; toilet room, buffet, stoves, ice-box; water tank, clothes lockers, etc.; full suit new Ratsey sails. Boat in first-class condition, and completely equipped for cruising. Price reasonable. Cox & Stevens, 15 William Street, New York City.

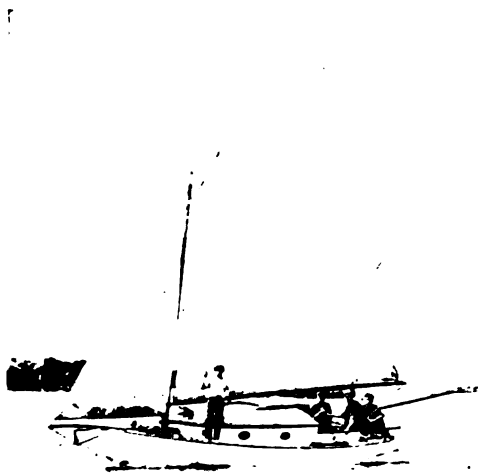
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No. 6598—For Sale—Auxiliary yawl, 28½x23x9½x4. Oak timbered, cedar planked. Everything in fine condition. 10-h.p. Mianus engine, speed 7 miles. Tanks 40-gal. capacity. Large cabin. Centerboard in keel under floor; ice-box holds 200 lb. Inventory includes all necessary equipment for cruising and complies with law. Hair cushions, stove, dishes, two anchors

and cables, compass, awning, round-bottom tender, etc. Boat has cruised Cape Cod to Florida. Excellent sea-boat. Reason for selling have larger boat. Price \$550. Inspectable at Providence. For further information apply C. E. Boyden, 44 Camp Street, Providence, R. I.

* * *

No. 6600—For Sale—One of the famous Bar Harbor class, designed and built by Herreshoff in 1903. 49 ft. o. a., 31 ft. w. l., 10 ft. 6 in. beam, 7 ft. draught. No finer fast cruiser of her size afloat; very able, fast, and splendid sea-boat. Double planked, all fittings, blocks, etc., bronze. Solid mahogany cabin house, hatches, skylight, etc. Full headroom, four large berths and two transoms in cabin, clothes locker, drawers, and large toilet room. Three pipe berths forward. Galley with stoves, ice-box, dish lockers, etc. Beautiful narrow strip holystone deck. Complete cruising equipment, light sails, storm sails, etc., by Wilson & Silsby. Nearly new bright cedar dinghy. Boat and equipment in A-1 condition. Price very low. Address G., Room 1112, 29 Broadway, New York City.



6598



6600



6657

No. 6657—For Sale—Crack Herreshoff 30-footer, designed by N. G. Herreshoff and built by the Herreshoff Mfg. Co. at Bristol, R. I., in 1904. 47.10 ft. o. a., 30 ft. w. l., 11.4 ft. beam, 7 ft. draught. 7,000 lb lead ballast on keel. Comfortable cabin with good headroom. 1,250 sq. ft. of sail. This sloop yacht is designed to be a comfortable, solidly built and able cruising craft, and has considerable speed. Good cruising outfit complete in every respect. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 3320—For Sale—Fast and handsome craft, 50x6.6x2.6 ft. draught. Speed up to 21 miles. A 100-h.p. engine is placed



3320

forward of cabin and is accessible through same or from folding hatch directly over engine. The cabin has a transom seat



6656

on each side, also toilet and folding basin. Cockpit 12 ft. long. A good sea-boat, all engine controls at steering wheel. For full particulars and permit to inspect, apply to Gielow & Orr, 52 Broadway, New York City.

* * *

No. 11278—For Sale—Keel auxiliary cruiser, 45 ft. o. a., 36 ft. w. l., 14 ft. beam, 4.8 ft. draught. Very able and seaworthy, has cruised from Maine to Florida. Extra heavy construction. Double stateroom and saloon berth five people comfortably. Toilet room. Galley full width of boat. Berth forward for man. Mahogany interior gives 6 ft. headroom. 18-h.p., 4-cycle Lathrop engine, installed 1911, gives speed of 8 miles per hour. Completely equipped for cruising, including 12-ft. round bottom tender, new sails, awnings, binnacle, compass, etc. Price \$1,500. Address Stanley M. Seaman, 220 Broadway, New York City.

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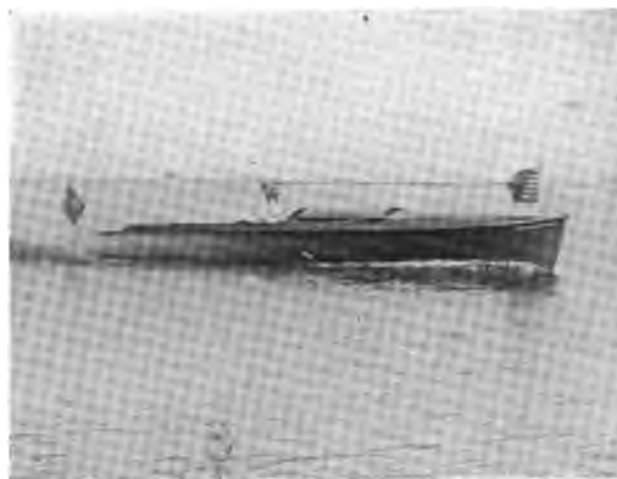
No. 6656—For Sale—Cabin knockabout 33 ft. o. a., 18 ft. w. l., 8 ft. beam, 3 ft. draught, built in Quincy in 1901 from designs of W. S. Burgess. Cabin finished with mahogany, has two transoms. Headroom 4.2 ft. Ballast 1,450 lb iron, all outside, making her safe and uncapsizable. She is very roomy, a fast, able sailer, and is a particularly desirable little cruising craft, and is offered at a very low price. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 3478—For Sale—Speed 15 miles; 25 ft. o. a., 4 ft. beam; double planked, copper fastened; 4-cylinder 16-h.p. Rochester engine. "Ever-ready" starting device, engine starting upon pressing a button; Atwater-Kent ignition; Patterson waterproof battery box containing twelve cells; Gray-Hawley spark and throttle control. All fittings are of brass. Gielow & Orr, 52 Broadway, New York City.



11278

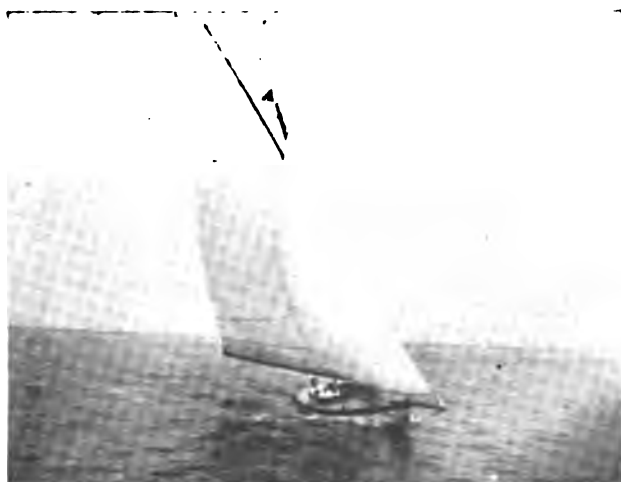


3478



691

No. 691—For Sale at a low price—Auxiliary keel cruising yawl designed by Binney, built by Lawley, 37 ft. o. a., 26 ft. w. l., 9 ft. beam, 6 ft. 6 in. draught; flush deck with raised companionway and skylight, strongly constructed, absolutely tight, full headroom, pole masts with new sails, waterproof sail covers, boat boom, has roomy cabin with two gas pipe bunks and mattresses, comfortable transoms, sideboards, drawers under foreward, toilet and Sands' lavatory forward of which is large galley and fore-castle. Well equipped and furnished having green velour hair cushions with backs, cockpit cushions, mattresses, brass and mahogany binnacle, cabin clock, cabin lights, awning and skylight covers, two anchors, chain, rope, double winch, running lights, riding light. Has 50-gal. water tank. Handsomely finished in mahogany throughout, 5-h.p. Palmer engine under cockpit floor, giving speed under power of 5 miles an hour, one ton of inside lead, about 2½ tons outside iron. A most complete and handy little cruiser in first-class condition in every way, could not be duplicated for less than \$4,000, is offered for sale at a very low figure as owner is unable to use her. Located near Boston. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.



6596

No. 6596—For Sale—Fast 21-footer; l. o. a. 31 ft., l. w. l. 19.10 ft., beam 6.4 ft., draught 5.6 ft. Sail area 600 sq. ft. Designed and built by Herreshoff. Entirely copper fastened throughout with bronze battons stripping inside of hull. Cedar, mahogany and oak. All outside ballast, 3,000 lb lead and bronze. Sails—Two mainsails, two jibs, one spinnaker, one balloon jib, one khaki cover. Good suit (Ratsey) in racing condition. Spars, rigging, blocks, etc., complete. Tight. Everything in A-1 condition. Boat on ways, Weber's Boat Yard, New Rochelle, N. Y. Will sell for one-fourth original cost. Address owner, Fred. Gade, 2 Sutton Manor, New Rochelle, N. Y.

* * *

No. 6595—For Sale—Houseboat Ideal, 75x25x1½ ft.; large rooms, saloon, three staterooms, sun parlor, galley, toilet, lavatory, running water, modern plumbing; boat is handsomely furnished, including piano, beds, hair mattresses, Shipmate range, cooking utensils, china, etc. Large upper deck roofed over; awnings, wicker furniture, anchors and chains, including 21-ft. 5½-h.p. open launch, skiff and dinghy, new yellow pine hull, last year over \$3,000 spent on improvements. An ideal Summer home; price very reasonable. In commission at Sheepshead Bay. For terms and inspection address Owner, 551 Bedford Avenue, Brooklyn, N. Y.



6595



3496

No. 3496—For Sale—Bargain, as owner is building larger boat. Comfortable and roomy, furnished, twin-screw houseboat. 98x17.6x3 ft. draught. Built in 1907. Main saloon 17x16 ft; ten staterooms and bath; running water to all staterooms. Separate tanks for drinking and washing water; electric lights, dynamo and storage batteries. Upper deck 73x17 ft., 53 ft. of which is covered by double faced awning. Four boats go with the houseboat, viz.: One mahogany decked launch, 40x7.6 ft., fitted with auto top and 35-h.p. Smalley engine, giving a speed of about 18 miles; one dory 16 ft. with 3-h.p. Ferro special engine, and two Mullins steel boats, which are carried on davits. The main engines are two 25-h.p. horizontal opposed, new in 1910. A 4-h.p. Fairbanks engine is used to drive the water, air, bilge, and fire pumps. Linen closets, two refrigera-

tors, ice-box (one ton ice). Gielow & Orr, 52 Broadway, New York City.

* * *

No. 2226—For Sale—Commodious, able and successful gasoline cruiser; remodeled and rebuilt Fall, 1911. 61 ft. o. a., 13 ft. beam, 3 ft. draught. Interior very well ventilated and finished in mahogany and white. Two long berths in cabin and two in pilothouse; bath and toilet. 60-h.p. Lamb motor gives yacht a speed up to 12 miles. Electric lights throughout, dynamo and storage batteries. After deck is 13 ft. long; gasoline tanks abreast of engine, under deck. A heavy iron shoe runs practically full length of the keel, acting as ballast and protection for the propeller. During the past Winter cruised to Florida by inside route. Gielow & Orr, 52 Broadway, New York City.



2226



902

No. 902—For Sale—Price attractive, owner having purchased larger yacht. One of the most desirable and best all-round schooner yachts afloat. Cary Smith design; steel construction. 119 ft. o. a., 90 ft. w. l., 23 ft. beam, 10.2 ft. draught; centerboard. Two double and three single staterooms, two bathrooms, large main cabin, galley, officers' staterooms, and forecabin. Full suit of working and light sails, by Watson & Griffen; used very little. Excellent racing and cruising outfits, including launch, cutter and dinghy. A winner of many races. Has cruised to Europe. Particularly well kept up. Inspection permit, plans, and complete particulars from Gielow & Orr, 52 Broadway, New York City.

No. 3635—For Sale—Willow Brook, 35 ft. o. a., fastest boat of her size and power in the country; can show better than 30 miles; has record of 115 miles at 28½ miles an hour. Sterling



3635

engine, 110-h.p. Hull and engine in first-class condition. Can be bought at a sacrifice. Gielow & Orr, 52 Broadway, New York City.

No. 6856—For Sale—Twin-screw, Lawley seagoing power



6856



10970

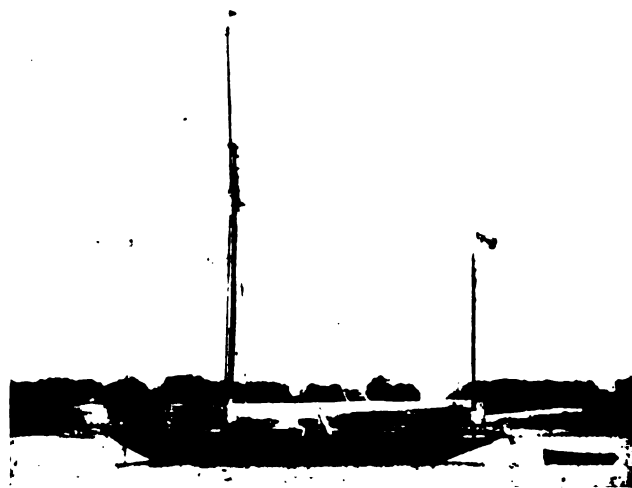
yacht. Designed for extended cruising. Launched 1909. Used two seasons. 90 ft. o. a., 17 ft. beam, 4½ ft. draught. Extra heavy construction. Four large staterooms with every convenience berth six people. Deck dining saloon. Bath and two toilets. Galley full width of yacht. Electric lights and heat. Elegant appointments. Two 60-h.p. Craig engines; speed 12 miles. Economically maintained—crew five. Good as new. Price reasonable. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 10970—For Sale—Keel coast cruising sloop, 60x40x14x7. Extra heavy construction—mahogany deck trim. One double, one single stateroom and saloon with two berths and two transoms, provide separate sleeping arrangement for seven people. Galley full width of boat. Commodious foc'sle. Headroom 6 ft. 3 in. Toilet room. Complete and elegant cruising inventory, including two tenders in davits. Attractive and comfortable cruiser, economically maintained. In perfect condition throughout. Very low price. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 11227—For Sale—Keel coast cruising yawl, 58.3 ft. o. a., 41 ft. w. l., 12.8 ft. beam, 8½ ft. draught. Designed by Crown-inshield, built 1907 by Lawley. Extra heavy construction—mahogany deck trim. 8½ tons lead on keel. Two staterooms and saloon transoms berth six people. Large toilet room. Galley full width of boat and headroom. Quarters neatly finished in mahogany and white, give 6.4 ft. headroom. Elegant cruising inventory, including two tenders in davits, Wilson & Silsby sails, etc. Exceptionally able, consistent and seaworthy. Low price. Address Stanley M. Seaman, 220 Broadway, N. Y. City.



11227



1620

No. 1620—For Sale or Charter—Flush deck, steel, auxiliary schooner yacht. Undoubtedly one of the most desirable yachts of its size. 118x81x22.2x13 ft. draught. Keel type. Owner's accommodations consist of four staterooms, large main cabin, two baths, and two toilets. Officers' staterooms and messroom, large galley and pantry, good sized forecabin. Headroom 6.6 ft. Handsomely finished interior, mahogany and white. Standard engine, 100-h.p. 6-cylinder; speed 8 to 10 miles. Acetylene lights, hot and cold running water, launch, cutter, dinghy; exceptionally complete equipment below and on deck, including fine suit of Ratsey sails. Full information, plans, and inspection permit, apply Gielow & Orr, 52 Broadway, New York City.

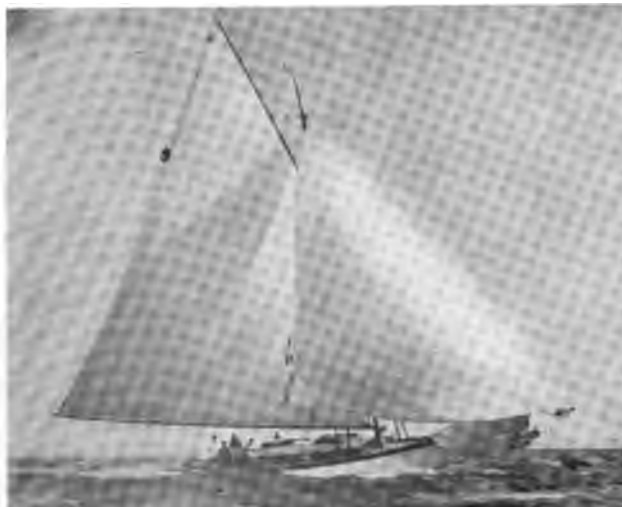
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No. 3461—For Sale—Gielow design semi-speed runabout, about 25 miles; mahogany, cedar, copper fastened; 60-70-h.p. Jencick engine, double independent ignition, Bosch magneto and



3461

magnetic plugs; carries ten; very staunch and quiet; highest grade boat, splendid condition; sell half cost. Gielow & Orr, 52 Broadway, New York City.



598



693

No. 598—For Sale—Auxiliary sloop. Excellent condition. Good seaworthy boat; 45 ft. o. a., 13 ft. beam, 3 ft. 10 in. draught; copper fastened; six tons lead on keel; cockpit 8 ft. long; saloon 10 ft. long and 6 ft. 1 in. headroom; with double transom berth on either side; two staterooms; toilet and galley; crew's quarters forward; sails new 1908, rigging, spars, etc., in good condition; steers with wheel. Engine will drive yacht 5 miles per hour. Has ample inventory for boat of her size. Will be pleased to submit plans and full particulars. Gielow & Orr, 52 Broadway, New York City.

* * *

No. 693—For Sale—Keel, cabin restricted M. Y. R. A. 18-footer. Dimensions, 31x18x7x5 ft. Winner of numerous trophies, including five cups season of 1911. Solid and hollow spars; two suits sails, one new 1911; 1,600 lb lead on keel. Built by Lawley, 1903. Excellent condition throughout. Available at bargain figure. Apply to Krogman & Purdy, 92 State Street, Boston, Mass.

* * *

No. 6576—For Sale—Attractive keel cruiser, 34.6x27x9.4x5. Designed by F. D. Lawley. Built by day's work. Exceptionally strong construction. Cockpit, cabin and decks mahogany trimmed. Has had best care. Fast, able and commodious. Winner 1910 N. B. Y. R. A. ocean race. Cabin berths four comfortably. Toilet room; galley. Berth forward for man. Interior finished with sycamore, bird's-eye maple and mahogany. Inventory complete for extended cruises. A-1 dinghy, full suits light and working sails, new 1909; rigging new 1910 and 1911. A good buy at an attractive figure. For listed inventory and full particulars, address F. H. Webster, Textile School, Fall River, Mass.



6576



542

No. 542—For Sale—Very able keel cruising sloop, 36 ft. o. a., 27 ft. l. w. l., 11 ft. 6 in. beam, 7 ft. draught. Built 1906 at Waldeboro, Me., on exact lines of the Gloucester fisherman. Is very heavily built, much heavier and stronger than any other yacht of this size, and should last a lifetime. 5 tons ballast, 3,500 lb inside, 6,500 lb outside; watertight cockpit; wheel; large main cabin, sleeping six; two large closets, separate toilet room and galley, including ice-box, sink draining outboard, shelves, stove space, etc. Has two 35-gal. water tanks, full suit of sails in good condition, sail covers, cushions, two folding berths, compass, lights, dishes, two anchors, two cables, awning, heavy standing rigging, new running rigging 1910, large windlass, etc. Was built for a yacht and is a fast sailer especially in heavy weather and rough water. Is in first-class condition in every way and is as tight as a boat can be. Must be seen to be appreciated. Inspectable near Boston. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

* * *

No. 1603—For Sale, Price Reasonable—Lawley, flush deck, keel schooner yacht, 69x25x15x9 ft. draught. Good sized cock-

pit. Double and single staterooms, toilet room, main cabin with two berths and two transoms; sleeping seven in owner's party. Galley, captain's stateroom, and good sized forecabin. Full equipment of working and light sails, by Ratsey. Complete outfit for racing and cruising, including power launch, capable of towing yacht four miles per hour. Yacht is in excellent condition throughout, is able and seaworthy, and has won numerous races. Further particulars and inspection permit from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 2900—For Sale—Attractive, fast and able keel sloop yacht, 52 ft. 4 in. o. a., 35 ft. w. l., 13 ft. 5 in. beam, 6 ft. 6 in. draught. Lead ballast on keel, 7 tons. Best construction; copper fastenings, clinched. Interior finish of mahogany. Single stateroom and saloon accommodate six; two toilets, etc. Sails complete, some new 1908, some 1907. Berths for two in forecabin. Equipment complete in detail. This yacht has been kept in A-1 condition, no money having been spared. Built by Marblehead Yacht Yard, from designs by Purdon. Only offered for sale on account owner's death. Apply to Gielow & Orr, 52 Broadway, New York City.



1603



2900



3590

No. 3590—For Sale—Very fast auxiliary catboat, Gielow design, built late 1910; 27 ft. 6 in. o. a., 2 ft. 6 in. draught, crosscut sail, Curtiss toilet, 6-h.p. engine. In perfect condition—a boat for the man who discriminates, not "bum bait" for greenies. Full particulars, Gielow & Orr, 52 Broadway, New York City.

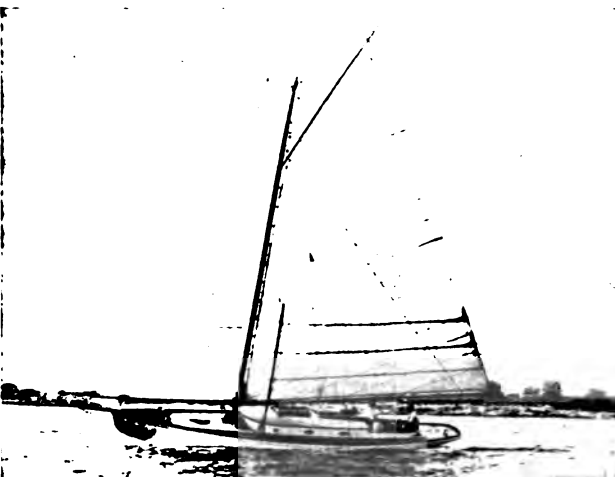
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No. 2482—For Sale—A very roomy and able boat. 37x8.6x2.8 ft. draught. One double stateroom, forward and after

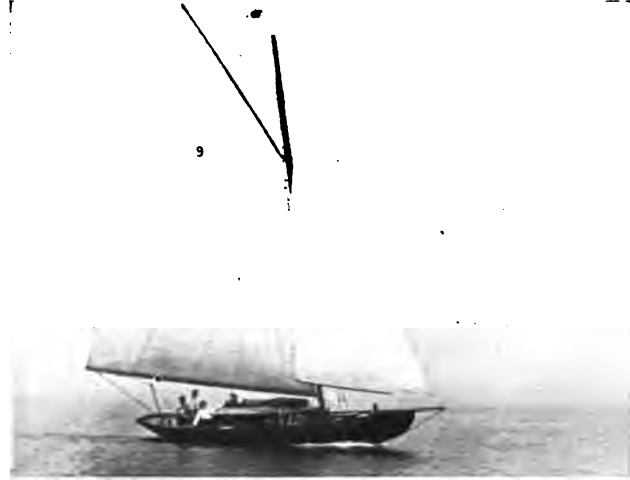


2482

cabins, giving six berths. 25-h.p. 4-cylinder engine. Has made the run from New York to Marblehead in 30 hours 42 minutes.



2442



6529

First to finish race. Price attractive. Gielow & Orr, 52 Broadway, New York City.

* * *

No. 2442—For Sale—Very fast, able and exceptionally well appointed keel sloop. Designed and built by Lawley, and in splendid condition. 39.2x25x9.6x6 ft. draught. Two suits of sails, one by Ratsey, 1910. Complete inventory including power dinghy. Interior finished in mahogany. Further particulars from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 6529—For Sale—Lawley-built Crowninshield-designed sloop, 41.6 ft. length, 26 ft. w. l., 10 ft. beam; good freeboard, very large cockpit, solid mahogany cabin with full headroom, two wide extension berths and two pipe berths forward, ample locker room; consistent winner in Long Island Sound Handicap Class; thoroughly able for outside cruising. Easy to handle, as speedy as consistent with the greatest possible amount of accommodation obtainable in a boat of this size, and cannot be surpassed as regards appearance, equipment, upkeep and condition. Inspectable at New Rochelle. Address B. R. S., 302 Produce Exchange, New York City.

* * *

No. 3896—For Sale—Very fast and able 22-footer, Medric II, designed by Small Brothers, and built by Hodgdon Brothers in 1905. 38 ft. o. a., 22 ft. w. l., 10 ft. beam, 6 ft. 7 in. draught (keel). Well constructed, copper fastenings, oak frames, etc. Outside lead ballast, good headroom in cabin. Wilson & Silsby racing sails (1910), 900 sq. ft. Also full set light sails. Comfortable craft. Full cruising equipment. Winner of many prizes. Permanent winner Possner Cup, champion class P, N. B. Y. R. A., 1910. Winner over twenty competitors in only race she started in 1911. Apply to Walter B. Frost, 48 Custom House Street, Providence, R. I.



3896



168

No. 168—For Sale—Lawley keel knockabout designed by A. S. Cheseborough, 41 ft. o. a., 27 ft. 6 in. l. w. l., 10 ft. beam, 5 ft. 10 in. draught; 9,000 lb outside lead ballast, two suits of sails, light sails, all spars new by Lawley, 1909; standing rigging new 1909; running rigging new 1910; steers with wheel, Edson gear; roomy, watertight cockpit, bright white pine decks; large cabin finished throughout in paneled mahogany and butternut; large closets, two extension transoms, shelves in rear; sideboards with drawers under in main cabin; large toilet room with Sands' folding basin; galley contains coal stove, dish lockers, drawers, etc., folding berth forward, room for two if desired. Boat is very fast and able and rates low under Universal Rating Rule; has won numerous ocean races and class prizes, but is distinctly a cruising boat. Is completely equipped for cruising, including Lawley cedar tender, cushions, table, compass, cabin side and riding lights, anchors, cables, etc. Is in first-class condition throughout and can be bought at a reasonable figure. Is a typical Lawley cruiser and one of the best boats of this type available. Inspectable near Boston. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

No. 425—For Sale—Keel cabin knockabout, 34 ft. 6 in. o. a., 21 ft. l. w. l., 8 ft. beam, 5 ft. 6 in. draught, designed by Crowninshield, built by William B. Smith in 1902. Has cabin 8 ft. long with over 4 ft. headroom with transoms and lockers. Has been used for cruising and racing with great success. 3,500 lb outside lead. Sails in fine condition, full set of light sails, covers, etc. Hollow spars, two anchors, cables, compass, lights, lamps, cushions, stoves, etc. Can be purchased at a low figure. Apply to J. G. Alden, 27 Kilby Street, Boston, Mass.

No. 6597—For Sale—Keel raceabout, 30 ft. 10 in. o. a., 18 ft. w. l., 5 ft. 1 in. draught, 7 ft. 2 in. beam. Double-planked, 1,800 lb lead on keel. Designed by Burgess & Packard, built by Graves, of Marblehead. Fits 18-ft. knockabout class. Self-bailing cockpit. Cabin sleeps two. Fast and able. Perfectly balanced and easy to handle. Hollow spars; two suits of sails; racing sails used only five months, made by Wilson & Silsby. Picture shows boat before cabin was added. Can be seen at F. S. Nock's Yard, East Greenwich, R. I. Address Box 1258, Providence, R. I.



425



6597



6583

No. 6583—For Sale—Able cruising Cape cat, 25.6 ft. o. a., 23.10 ft. w. l., 10½ ft. beam, 2½ ft. draught. Successfully raced with the best boats of her class in Massachusetts Bay. Sail new last year. Complete inventory. Large calm, tight cockpit. Price \$325. Guaranteed tight and sound; inspectable at Quincy. Apply to Messrs. Tupper & Hardwick, Spear Street, Quincy, Mass.

* * *

No. 6565—For Sale—Larchmont Inter-Club Class Sloop with cubby cabin, 34 ft. o. a., 7½ ft. beam, 5 ft. draught. Very able and seaworthy. One set sails by Wilson, one set by Ratsey. Sail covers, awning and complete equipment. Designed by Wm.



6565

Gardner, built by Robert Jacob 1910. In first-class condition. Hauled out at Larchmont Y. C. One of the best racing classes on Long Island Sound. Price attractive. Apply I. R. Edmands, Niagara Falls, N. Y.

* * *

No. 556—For Sale—Keel knockabout, 29 ft. o. a., 20 ft. l. w. l., 7 ft. 6 in. beam, 5 ft. draught, 3,000 lb outside lead ballast; water-



556



1352

tight cockpit; cabin with transoms, lockers in rear; closet; stove space; stoves, anchors, cables, etc. Does not leak a drop and is recommended as a safe, comfortable boat for day sailing and cruising. Has cruised to Nova Scotia and return. Crosscut sails in good condition. Laid up at Marblehead. Apply only to John G. Alden, 27 Kilby Street, Boston, Mass.

* * *

No. 1352—For Sale—Cheap to quick purchaser. Jib and mainsail sloop yacht, 38x26x12x4.3 ft. draught, built in best manner with 3,000 lb lead outside. Boat is in best of condition. Two suits of sails, also balloon jib, jibtopsail, spinnaker, and storm jib. Large cabin with 6 ft. headroom, will sleep four. Planking runs whole length of boat without butts. Equipment is very complete, including linen, china, cooking utensils, ice-box, Negus compass, etc. Full particulars apply Gielow & Orr, 52 Broadway, New York City.

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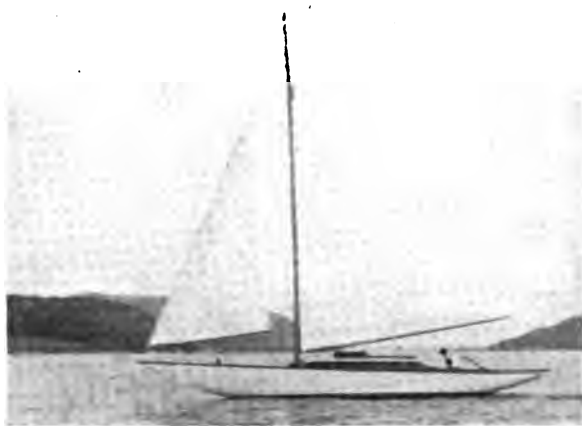
For Sale—Cruising motor boat, 40 ft. long, 12 ft. beam. Draws 30 in. water. Equipped with two 15-h.p. Buffalo engines. Speed about 9 miles per hour. Cabin forward accommodates four people, and cabin aft crew of two. The yacht is practically as good as new, being kept out of water in a tight boathouse. Cost \$7,000; will sell at big sacrifice. In water in perfect running condition at Sarasota, Fla. For further information inquire of H. G. Warner, Tampa, Fla., or Barney & Berry, Springfield, Mass.

* * *

No. 501—For Sale—Cruising gasoline yacht, 40.8x38x9.4x3.6 ft. draught. Sleeps four in cabin; two bunks in forecabin. Separate toilet with w. c. and lavatory. 6.3 ft. headroom. 20-h.p. 4-cylinder, 4-cycle Ralaco engine. Built 1908. Hard pine planking; finished in mahogany inside and out except forecabin. Full cruising inventory. A handsome yacht, A-1 condition and a great bargain. Price \$2,500. G. T. McKay, Agent Stearns & McKay Co., Marblehead, Mass.



501



6629

No. 6629—For Sale or Charter—Auxiliary sloop Mariposa, 22 ft. w. l., 35 ft. o. a., 5.8 ft. draught, 660 sq. ft. sail area. Designed by Crowninshield and built by Graves in 1903; of extra strong construction. A fast and able sailer. $4\frac{1}{2}$ -h.p. Knox engine, new in 1910, installed under cockpit. Exceptionally good accommodations, 5 ft. headroom, cabin paneled in mahogany; separate toilet and galley, partitioned off; bright decks, light sails, boat-boom, 14-ft. cedar tender, lights, signals, air mattresses, water tank, stove, and full cruising equipment. A first-class yacht in every way. Apply to S. E. M., 411 Marlboro Street, Boston, Mass.

No. 10553—For Sale—At reasonable figure, Ninfea, keel cruising yawl, 44.8x29 $\frac{1}{2}$ x10 $\frac{1}{2}$ x6. Extra high-grade craft. Copper fastenings. Mahogany deck trim. $4\frac{1}{2}$ tons lead keel. Cabin



10553

berths four. Galley; toilet; foc'sle. 6 ft. headroom. Paneled mahogany interior. Complete cruising inventory, including tender. Fast and able. Address Stanley M. Seaman, 220 Broadway, New York City.

No. 296—For Sale—Auxiliary keel sloop, 33x21x8.6x5 ft. draught. Copper fastenings, lead on keel, spoon bow, overhang



296



6631

stern, trunk cabin and cockpit, two berths in cabin, pipe berth forward. Especially designed for single-handed cruising; rather heavily built. Mahogany skylight, companionway slide and coaming. Engine 5-h.p., 4-cycle with Schebler carbureter under companion steps, gives speed of 5 miles. Complete cruising outfit, in first-class condition. Price reasonable. Apply to Gielow & Orr, 52 Broadway, New York City.

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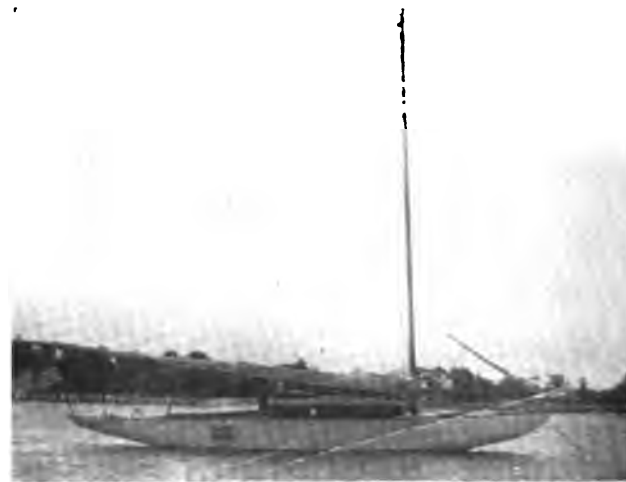
No. 6631—For Sale—A rare opportunity to secure an unusually fine craft for fishing, pleasure trips or cruising; 40x9.2x3 ft. draught. Boat in splendid condition; made to order, two years ago, with extra heavy construction for outside sailing. Size of forward deck 6 ft., cabin 14 ft., cockpit 14 ft., aft deck 6 ft. Latest and best equipment; 21-h.p. (Show engine) Campbell, made speed 13 miles per hour. One-man control from cockpit; special folding signal mast. Cost \$3,100; price \$2,200. Owner building larger boat. Now is your chance; boat will be sold immediately. Boat stored at Samuel L. Moore & Son Corporation, Elizabethport, N. J.

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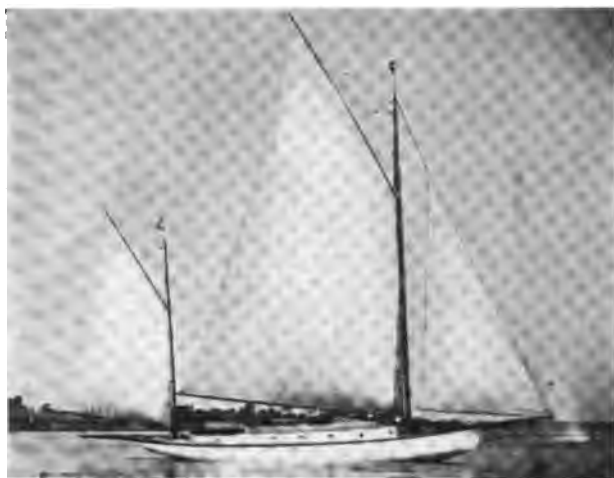
For Sale—Crosby Cape Cod cat, 27x12x2.6. New Mianus $7\frac{1}{2}$ -h.p. engine, 1911. New sail, 1911. Large cabin. Watertight cockpit. Anchors; lights. Oak frame, cedar planking; ten years old. Big sound, able cruiser. Price \$550. L. W. Fawcett, 1 Liberty Street, New York City.

* * *

No. 726—For Sale—Fast and able keel sloop; built 1901; 41 ft. o. a., 25 ft. w. l., 10 ft. beam, 6 ft. 6 in. draught. Cedar planked, copper fastened. 6,000 lb lead on keel. Full headroom in cabin containing three berths, two transoms; toilet, galley, etc. Hollow spars and complete suit of sails. 12-ft. tender. Boat in excellent condition. Smart sailer, especially good at windward work. Exceptional bargain, should not be overlooked. Apply to Krogman & Purdy, 92 State Street, Boston, Mass.



726



6599

No. 6599—For Sale—Auxiliary yawl, 41x28x11½x4½. Had only two owners. Best of care. Best of condition. Everything first-class, almost good as new. Very stiff and able. Exceptionally good all-around yacht. Very fast under sail. Under power about 6 miles per hour. Fully found. Cost \$4,600, will sell for \$2,000. Send for particulars. Address P. O. Box 4, South Swansea, Mass.

* * *

No. 6628—For Sale—Power boat, 31 ft. long, 6 ft. beam, canopy top and drop curtains; 3-cylinder 15-h.p. engine, speed 12 knots; tender and full equipment, first-class in every way;



6628

price \$500; demonstration gladly given. Apply to R. H. Brown, 131 Border Street, East Boston, Mass.



6630



6655

No. 6630—For Sale—25-ft. seagoing Atlantic dory, equipped with a double-cylinder 8-h.p. engine, cork cushions, anchor and cable, side and riding lights, tools, and a special sprayhood covering entire cockpit. Two gasoline copper tanks holding 15 gal. The boat, engine and all its equipment in fine shape, and this is a bargain for some one who wants a 9-mile seaworthy and trim-looking craft. Price \$300. Laid up at Nock's, East Greenwich, R. I. W. H. Thurber, 229 Waterman Street, Providence, R. I.

* * *

No. 6655—For Sale—Well-known light-draught centerboard auxiliary schooner, *Seriola*. Just the boat for Florida waters or anywhere else where moderate draught is required. Designed by Crowninshield and built by Rice Bros., E. Boothbay, 1910. 46 ft. o. a., 32.6 ft. w. l., 12.6 ft. beam, 2 ft. draught. Cabin has 6.2 ft. headroom and finished in white and mahogany. Also double stateroom. 10-h.p. Rice Bros. engine, 2-cylinder, giving speed 6 knots under power alone. Full equipment, watertight bulkhead between engine and cabin; one set davits, tender, etc. Has cruised from Key West to Grand Manan. A first-class boat offered for sale at reasonable price as owner has no further use for her. Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 663—For Sale—Handsome flush deck schooner yacht; built by Lawley, 1902; 74 ft. o. a., 49 ft. 8 in. l. w. l., 16 ft. beam, 10 ft. 6 in. draught. Double and single staterooms, galley, two toilets, etc. Main saloon beautifully finished and contains two sofas, bookcases with leaded glass doors, buffets, and four closets. Regular cruising inventory. Launch and cedar tender. Very fast and able cruiser. For further particulars apply to Krogman & Purdy, 92 State Street, Boston, Mass.



663



371

No. 371—For Sale—Shoal-draught cruising yawl, built 1904; 42 ft. o. a., 27 ft. w. l., 12 ft. beam, 3 ft. 6 in. draught. Exceptionally roomy cabin, containing four spring berths and wide transoms; comfortable sleeping accommodations for eight. Full headroom; toilet, lavatory, ample locker space, etc. Extensive inventory. Power tender. Engine bed and gasoline tank in place ready for installation of motor. Available one-third original cost. Apply to Krogman & Purdy, 92 State Street, Boston, Mass.

* * *

No. 6652—For Sale—Very attractive modern motor boat, built in 1908; 38 ft. o. a., 10 ft. beam, 3 ft. draught; equipped with 24-h.p. Pearl motor, giving her a sustained speed of 24



6652

knots an hour. Aft is flush quarter deck with ample room for six chairs. Cabin has two wide 12-ft. transoms; stateroom on



6651

starboard side. Only reason for selling, owner desires larger boat of same type. Inspectable near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 679—For Sale or Charter—Attractive houseboat, 45x41x18 ft. x 12 in. Built 1906. Located at Rhode Island. Five state-rooms, galley and pantry, bath, toilet, and every convenience. Has large saloon, 18x10 ft., and observation room 12 ft. square on upper deck, which does not show in accompanying photo. Boat very heavily planked and framed. 200-gal. water tank. Tender. Fully furnished and equipped. Apply to Krogman & Purdy, 92 State Street, Boston, Mass.

* * *

No. 6651—For Sale—Red Jacket, 26 ft. o. a., 18 ft. l. w. l., beam 7 ft., draught 1 ft., without centerboard; cedar planking, copper fastened, mahogany finish; varnish pine and mahogany decks and steel centerboard, weight 400 lb, which is easily raised and lowered with bronze winch; hollow spars, bronze fittings throughout. Two suits of Egyptian cotton sails, including light sails, one suit only used one day. Boat is in perfect condition, winner of 27 firsts in 30 starts; fastest boat of its size in Long Island Sound. In appearance resembles the famous Nutmeg. Would make an ideal boat and sure winner for Class S, Inter-Club Mass. Bay. A winner in both light and heavy weather. A bargain; \$250. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 1632—For Sale—Owner building larger; fast and comfortable cruiser. Has sailed from Cohasset, Mass., to New Rochelle in 2½ days. 30x18x8x4.6 ft.; full length planking; large self-bailing cockpit; 5 ft. headroom; two berths in cabin; sails and rigging in good condition. Gielow & Orr, 52 Broadway, New York City.



679



1632



6586

No. 6586—For Sale—The well-known cabin sloop, Sally IX. Won the championship in her class in 1910 and 1911 on Long Island Sound; is very fast and extremely able. This boat is of the best construction; planked with mahogany, oak timbers, copper and bronze fastened. 5,000 lb lead on keel. 39 ft. 9 in. o. a., 27 ft. w. l., 8 ft. beam, 6 ft. draught. Large cabin, 4 ft. headroom; two transoms; has very large cockpit. Is well equipped for racing and day sailing. Has two sets of sails, the last by Ratsey, new 1910, in excellent condition; 760 sq. ft. sail area. Hollow spars. Designed and built by Burgess in 1907. May be inspected at New Rochelle Y. C., or address A. E. Black, 778 E. 169th Street, New York City.

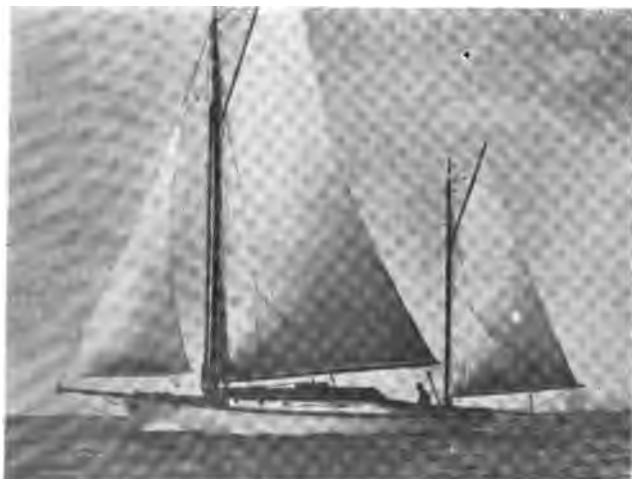
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No. 11177—For Sale—Keel auxiliary Crosby sloop. 38x26x11x5. Lead ballast. Fine able cruiser, berthing four people comfortably. Toilet. Galley. Berth in foc'sle. 6.2 ft. head-



11177

room. 10-h.p. Stanley motor; speed 5 knots. Complete inventory. Price reasonable. Trade for 60-ft. yawl or schooner. Address Stanley M. Seaman, 220 Broadway, New York City.



6635



6654

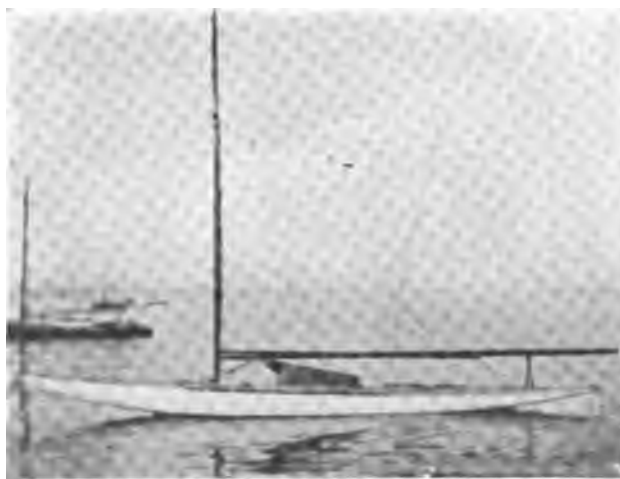
No. 6635—For Sale—Cruising yawl, 38x11½x5½. Heavily built, seaworthy, plain finish. 1,500 lb iron outside. Centerboard below floor; wheel steerer; full headroom. Four bunks (three with spring mattresses) and two cushioned transoms in cabin, pipe-bunk forward. Fixed ice-chest; two water tanks, one gasoline tank; 2-cylinder Oriole engine; enclosed toilet. Hull ten, engine three, years old. Sails not new, but in excellent condition. Balloon jib and spinnaker; two awnings; sailing tender, two anchors, one manila rode, one chain. Inspectable Staten Island. Price \$1,000, with discount for prompt cash. Address S. A. Reeve, Tompkinsville, N. Y.

* * *

No. 6654—For Sale—Very desirable launch built and designed by W. S. Burgess at Marblehead in 1909. 25 ft. o. a., 20 ft. w. l., 6 ft. beam and 2 ft. draught. Copper fastenings, oak frames, mahogany deck. The engine is Jaeger, 12 to 15-h.p., giving her a normal speed of 10 miles per hour. The boat has canvas covering, anchor and line, oars, etc. This boat is in perfect shape and has seen but little use. Price is reasonable. For further particulars apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 6592—For Sale—Centerboard racing knockabout, 36 ft. o. a., 19.28 ft. w. l. (with crew aboard), 7.09 ft. beam, 1.4 ft. draught. Designed by Fyfe and built by The Thames Yacht Building Co., England, for prominent New York yachtsman. New set Pigeon-Fraser hollow spars, new sails, new centerboard, new self-bailing cockpit and new canvas on deck, 1911. Extremely fast, having defeated one-time Canada cup defender. Winner, during last two seasons, of 6 firsts, 2 seconds, out of 13 races. Address P. O. Box 346, Babylon, L. I., N. Y.



6592



6823

No. 6823—For Sale—One of the most attractive fast American-built steam yachts, in perfect order. A steel vessel 190 ft. on deck, 165 ft. w. l., 22 ft. 6 in. beam, 9 ft. draught. Is twin-screw, triple-expansion engines, Almy boilers, and will make 18 knots. Is very smooth running and particularly well adapted for both cruising and ferry service. Has two large deck-houses, the forward being used for dining room, with pantry and captain's room; the after deckhouse being divided into owner's stateroom and music or smoking room. The guests' quarters are below, aft, and consist of six large staterooms and five bathrooms. All woodwork is by best marine decorators, all fixtures by Tiffany, and the furnishings and fittings throughout are unusually handsome. Is steam-heated and electric-lighted. Carries two launches and three pulling boats. For plan and further information apply to William Gardner, 1 Broadway, New York City.

* * *

No. 473—For Sale—Keel cruising knockabout 40 ft. o. a., 25 ft. l. w. l., 10 ft. 6 in. beam, 5 ft. 9 in. draught; designed by Crowninshield and built by Brown in 1901; 6,000 lb of outside ballast; boat heavily and strongly constructed throughout; Wil-

son & Silsby sails, new in 1910, in first-class condition; completely equipped with awnings, anchors, cable, cushions, lights, compass, fog-horn, stoves, and all regular cruising equipment for a boat of this size. Accommodations consist of main cabin with two large closets and two extension transoms, roomy toilet room at forward end with folding lavatory, opposite which is galley under cabinhouse; berth forward for paid hand; one of the best boats of her type and can be bought at a very low figure. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

* * *

No. 84—For Sale or Charter—Flush deck steam yacht. One of the best of its size. 103 ft. o. a., 83 ft. w. l., 14 ft. beam, 5 ft. 9 in. draught. Wood construction; well-known builders. Speed up to twelve knots. Deck dining saloon. Two double and two single staterooms, sleeping six to eight; bathroom and three toilets for owner's party. Interior finish attractive; mahogany, bird's-eye maple and white. Triple-expansion engine, water-tube boiler, electric lights, searchlight, steam heat, hot and cold water. Full equipment for cruising, below and on deck, including launch, gig, dinghy, etc. Plans, prices, etc., from Gielow & Orr, 52 Broadway, New York City.



473



84



6591

No. 6591—For Sale—Raised deck cruiser, 27x7, built 1910. Oak frames, hard pine planking. Hatch, sky-light, companion-way, cabin bulkhead and cockpit finish, all East India teak-wood. Cabin—cypress, finished bright. Ice-box, clothes lockers, food-lockers, toilet, etc. Emergency sail-rig (mainsail and jib.) Bronze rudder. Heavy copper tanks. Power plant, new last season; Eagle heavy-duty engine, 2-cylinder, 5x6, turns Hyde windlass, 24-in. wheel 497. Cabin cushions covered with green corduroy. Cockpit cushions cork filled pantasote. Can be seen near Providence, R. I. Address Edward Shaw 2d, Providence, R. I.

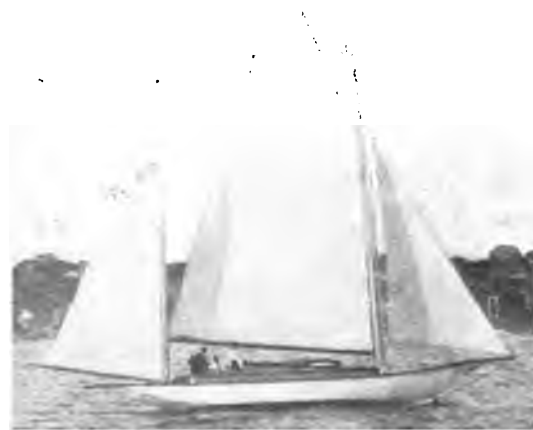
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No. 1731—For Sale—Bargain. Fast knockabout; 31.3 ft. o. a., 22 ft. w. l., 8 ft. beam, 4 ft. 6 in. draught; not quite completed. Best construction; bright decks. Large, comfortable cabin, per-



1731

manent transom berths. Hull copper fastened. Built by well-known firm. Will be sold very cheap. Apply to Cox & Stevens, 15 William Street, New York City.



6579

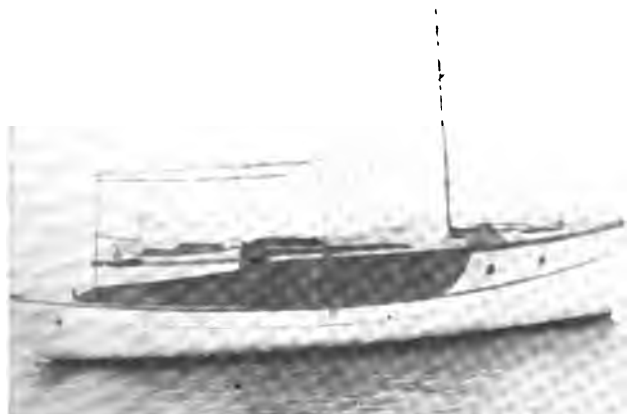
No. 6578—For Sale—Raised deck cruiser built by Emmons at Swampscott, 1910, pine planked, oak trimmed, interior finish paneled cypress bright, 30x7.6x2 ft., 15-h.p. 2-cylinder Mianus motor, 1911, Paragon reverse gear, force-feed oiler and magneto, full cruising inventory, military mast, awning, 50-gal. copper gasoline tank, 20-gal. water tank, bronze fittings, speed 9 miles, stateroom forward sleeps two, galley, and one berth in engine room, 5.5 ft. headroom. Has cruised from Swampscott, Mass., to Greenport, L. I. Inspectable at Providence. Price \$1,050. Owner wants auxiliary yawl. Whitman Yacht Agency, 338 Banigan Building, Providence, R. I.

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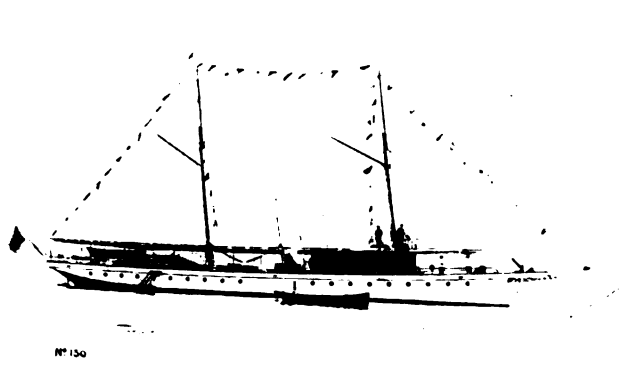
No. 6579—For Sale—Centerboard yawl, ready for auxiliary power, 37.6 ft. o. a., 26 ft. w. l., 12 ft. beam, 3.6 ft. draught; designed and built by Crosby in 1900; 5,000 lb lead ballast, sails good, fine cabin finished in oak and mahogany, sleep eight and one man in forecabin; complete cruising inventory, including hair mattresses, plush cushions, ice-box, copper water tank, stove, mahogany trimmed dinghy on davits. Headroom 5.10 ft. Has engine bed under cockpit, and is bored for shaft. Is in excellent condition, fine sea-boat. Price \$1,300. Inspectable near Providence. Apply to Whitman Yacht Agency, 338 Banigan Building, Providence, R. I.

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No. 130—For Sale—Desirable steel steam yacht; 140 ft. o. a., 17.6 ft. beam, 7 ft. draught. Speed 14 knots; triple-expansion engine. Six staterooms, two bathrooms, steam heat, electric lights, etc. Handsomely finished and furnished. Especially suited for Great Lakes. Price attractive. For plans and further particulars apply to Cox & Stevens, 15 William Street, New York City.



6578



130



6768

No. 6768—For Sale—High grade craft, 50 ft. o. a., 10 ft. beam, 33 in. draught. Designed by Gielow, built, 1907, by Crosby. A splendid feature is the large cockpit. Cabin berths four people comfortably. Toilet room. Galley space. Berth in engine room. Interior beautifully finished in mahogany, gives 6 ft. headroom, lighted by electricity and well ventilated. 25-32-h.p. Standard motor, gives speed of 10 miles per hour. Fuel capacity 100 gal. in copper tank located forward of collision bulkhead. Has always been well owned and is to-day in first-class condition throughout. Inspectable St. Lawrence River. Owner having no further use desires to dispose of her at once. Offer solicited. Address Stanley M. Seaman, 220 Broadway, New York City.

No. 15—For Sale—Handsome, able and roomy, flush deck, keel, auxiliary schooner yacht; 98 ft. o. a., 68 ft. w. l., 20 ft. beam, 9 ft. draught. Built 1903; high-grade construction. Lead ballast on keel. Interior finish mahogany and white; exterior teak and mahogany. Accommodations include double and two single staterooms, large saloon, bathroom, two toilets, etc. Speed under power 9 miles; 50-60-h.p. Standard engine (installed 1910). Acetylene lights. Sails by Ratsey. Completely and handsomely furnished. One of the best cruising craft of her type. Good sailer and an exceptionally fine sea-boat. In first-class condition. Price attractive. For plans and further particulars apply to Cox & Stevens, 15 William Street, New York City.





900

No. 900—For Sale—Shoal-draught schooner, 82 ft. o. a., 20 ft. 6 in. beam, 3 ft. 6 in. draught, headroom 7 ft. throughout. Unusual accommodations, including saloon 16x16 ft. with upright piano, fireplace, sideboard, etc. Four large double staterooms, single stateroom for sailing master, commodious quarters for crew, bath, three toilets, large galley, pantry and cold storage room with capacity for two tons of ice; running water in staterooms, bath and galley. Large inventory mahogany launch and two yawls. Chesapeake buckeye rig, requiring but two men and a boy for full crew, and is thoroughly adapted for cruising in all waters. Would make extraordinarily fine power houseboat. Price reasonable. Inspectable one hour from New York City. Full particulars, Gielow & Orr, 52 Broadway, New York.

* * *

No. 6581—For Sale—Cutter Minnehaha, length o. a. 28 ft., w. l. 23 ft., beam 8 ft., draught 4½ ft. One ton of ballast laid in keel. Toilet, galley range, aluminum dishes, compass, anchors, barometer, and full equipment for a comfortable and safe cruising boat. Practically new and has had excellent care. Will sell very reasonably to settle an estate. Address George W. Perry, 120 Highland Place, Ithaca, N. Y.

* * *

No. 20—For Sale, price very attractive; available charter on Great Lakes or St. Lawrence River—Herreshoff flush deck steam yacht, 102 ft. o. a. Guaranteed by owner, sound and

fit. Dining room in deckhouse. Sleeps six in double stateroom and main cabin. Triple-expansion engine, water-tube boiler,



20

electric lights. Economical to operate. Apply to Gielow & Orr, 52 Broadway, New York City.

* * *

No. 6632—For Sale—Speed boat 36½x4.3 displacement type; double planked hull, oiled silk between. Construction of the best. Fittings all brass or bronze composition. Special Dixie speed wheel. 60-h.p. 6-cylinder, 4-cycle Palmer-Singer engine, magneto, etc., just installed. Will sell complete or boat and motor separately. Hull so easily driven that 19 miles was obtained with only 15-h.p. engine. A real bargain for less than half cost. "J. H. S.," 300 Clinton Avenue, Brooklyn, N. Y.



6581



6632



413

No. 413—For Sale—Auxiliary cruising yawl, 76 ft. 6 in. o. a., 52 ft. l. w. l., 17 ft. beam, 7 ft. 6 in. draught; designed and built by Seabury, in 1901; flush deck with cockpit, large after stateroom, steerage, main cabin, two guests' staterooms, captain's stateroom, large forecabin and galley; finished throughout in mahogany; two toilet rooms, 6 ft. 2 in. headroom; 16 tons of lead on keel; two boats, including one launch, completely equipped in every detail for cruising; sails in good order; has 35-h.p. Craig engine, located at after end of galley, installed 1908, which gives speed of 7 miles an hour; is one of the easiest handled yawls of her size and can be run in first-class manner with a crew of four; is very able and stiff and has always had good care; price low, as owner is unable to use her next year. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

* * *

No. 6822—For Sale—Glass cabin cruiser, 40x8x3.6; new 15-h.p. Lathrop engine, installed 1908, speed 10 miles continuous running. Has pilothouse, main cabin, toilet room, galley and engine room aft. Comfortable sleeping accommodation for four. Reverse clutch and control at wheel forward. Low figure. Apply William Gardner, 1 Broadway, New York City.



6822

No. 3631—For Sale—Hydroplane 14 ft. o. a., 42 in. beam. Has made a speed of 29.4 miles an hour for 13½ miles with two people on board. Motor 4-cylinder Fox de Luxe. Launched



3631

September, 1911, and used two weeks. Owner building larger. Gielow & Orr, 52 Broadway, New York City.

* * *

No. 6590—For Sale—30x7½ cabin cruiser, mahogany finish; built by Tolman, Camden, Me.; completed 1910. 18-h.p. engine. Complete equipment; toilet, lavatory; bridge controls. Wish larger boat. Price \$700, if taken before April 1. Hauled up Peaks Island, Me. H. E. Baker, Portland, Me.



6590



6566

No. 6566—For Sale—Bargain. \$275 if sold at once. Cape Cod catboat 25 ft. on deck, 10½ ft. beam, 3 ft. draught. Splendidly designed for cruising. Roomy cabin that will comfortably sleep four; inside iron ballast; 550 sq. ft. sail area crosscut. This boat is exceptionally well made of white oak and cedar, built 1906, and has quite a turn for speed. Address A. F., 5413 Trinity Street, West Philadelphia, Pa.

* * *

No. 1227—For Sale—Excellent bargain. Desirable cruising motor yacht; 70x12x3.10 ft. Built by Seabury in best manner. Speed 12-13 miles; 70-h.p. 20th Century engine. Independent lighting plant. Handsomely finished in mahogany throughout.



1227

Pilothouse, stateroom, main saloon, galley, etc. Perfect ventilation throughout. Owner has purchased larger power yacht through us, therefore anxious to make quick disposal. Cox & Stevens, 15 William Street, New York City.



6588



1143

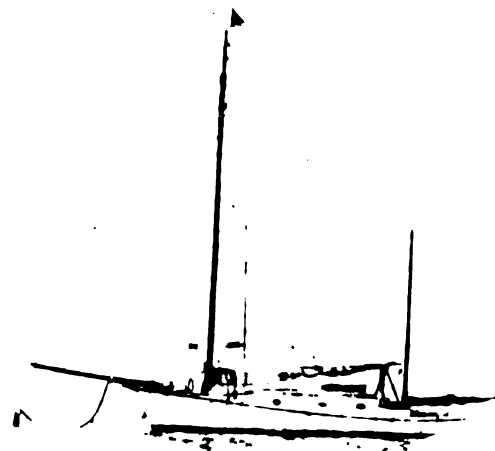
No. 6588—For Sale—Centerboard knockabout, 28 ft. 6 in. o. a., 17 ft. w. l., 10 ft. beam, 2 ft. 2 in. draught. Built 1902. 5 ft. 6 in. headroom. Two full length clothes lockers; full cruising inventory, including ice-box, water tank and awning extending from mast to stern, and full length Winter cover to water line. Stiff and able; good sea-boat; well built, and has had best of care from time of construction. For further particulars apply 86 Weybosset Street, Room 29, Providence, R. I.

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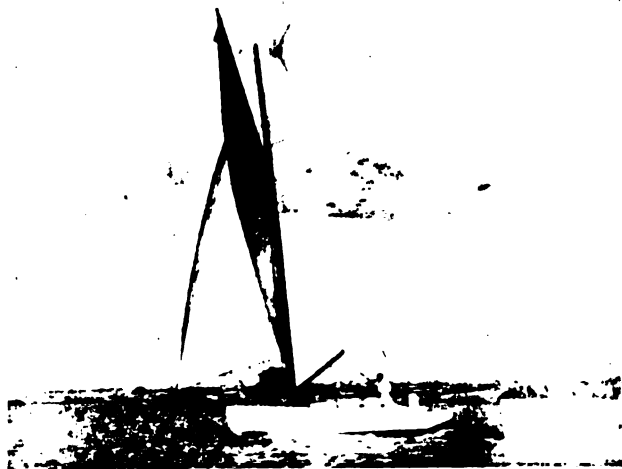
No. 1143—For Sale—Exceptional bargain. Attractive and fast keel cruising auxiliary yawl, 52 ft. o. a., 36 ft. w. l., 11.6 ft. beam, 7.6 ft. draught. In first-class condition. Designed by Fife. Flush deck and narrow trunk cabin. Sails new 1911, by Wilson & Silsby. Accommodations include double stateroom, saloon, toilet, etc. Lead ballast on keel eight tons. Speed under power 5½ knots; 15-h.p. 2-cylinder motor installed 1910 under companion stairs. Fully found, including Lawley tender; equipment mostly new 1911. Has had best of care; owner anxious to sell, having purchased larger yacht through us. Apply to Cox & Stevens, 15 William Street, New York City.

* * *

No. 6636—For Sale—Aeola, 40 ft. o. a.; yawl rigged; clipper-built bow, deadrise hull of Sea Bird type aft. One of steadiest boats afloat in heavy sea. Hull built of 2-in. planking. Built by Thos. Clapham, Long Island. 4-cycle, 6-h.p. engine. Perfect order. Fully equipped with sea-anchor, two anchors, spinnaker, mizzen, stay sail, stove, complete set of dishes, compass, etc., everything for extended cruising. Cruised last season about 2,000 miles. Cost \$3,000 to build without engine. Great bargain at \$1,100 fully equipped. W. G. Palmer, 1739 First National Bank Bldg., Chicago, Ill.



6636



1445

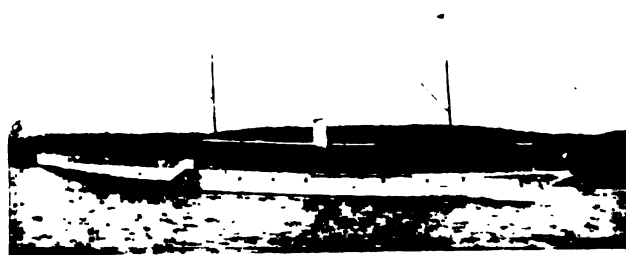
No. 1445—For Sale—Bargain—Well-known fast, jib and mainsail, centerboard knockabout, 34 ft. o. a., 21 ft. w. l., 11 ft. beam, 3.6 ft. draught. Built 1908 in best manner. Oak frames; double planking of cedar; brass screw fastenings. Winner of numerous races against large class, including the best of her size. Very strongly built; easily handled and a fine sea-boat. Hollow spars. Cabin and cockpit finished in mahogany. Wide transoms in saloon sleep six. Owner very anxious to sell as he is building one of different type from our designs. Any reasonable offer entertained. Apply to Cox & Stevens, 15 William Street, New York City.

No. 365—For Sale at a Bargain. Gasolene cruising launch, 61 ft. o. a., 12 ft. beam, 4 ft. draught; strong construction, copper fastened; steers from pilothouse and bridge; deckhouse mahogany, plate-glass windows, one boat on davits, etc., complete; roomy pilothouse and saloon forward with galley, and toilet;

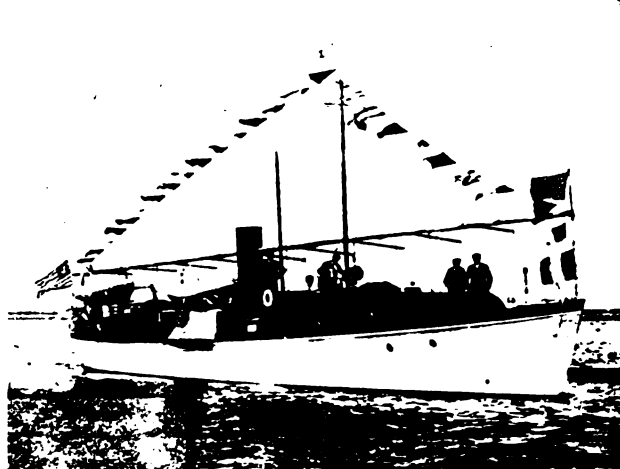


365

good engine room with two berths for crew, and two 25-h.p. Standard motors; large main saloon and owner's quarters aft, nicely furnished and with ample stowage room. Would be a fine, comfortable craft for cruising in both Northern and South-



219



3166

ern waters or passenger service. Apply to Cox & Stevens, 15 William Street, New York City.

No. 219—For Sale—Sacrifice; to close estate. Steam yacht, 112 ft. o. a., 13.3 ft. beam, 6 ft. draught. Speed 12 knots; triple-expansion engine; water-tube boiler new 1909. Two double and two single staterooms, bath, electric lights, etc. In 1909 was thoroughly overhauled and numerous improvements made. Full particulars, plans, etc., from Cox & Stevens, 15 William Street, New York City.

No. 3166—For Sale; May Charter—Owner has larger yacht. Beautifully kept up, twin-screw motor yacht, 93x86.9x13.6x4.8 ft. draught. Built by well-known concern for present owner. Large after and bridge decks. Roomy owner's stateroom forward with bathroom connecting. Amidships is machinery space, gasolene tanks aft, followed by galley, guests' toilet room, and large main cabin with wide transom on each side, buffet, lockers, etc. Two 100-h.p. 6-cylinder Standard engines; speed 12 to 15 miles. Equipment is very complete, including independent electric light outfit. Interior and exterior, mahogany. Bottom copper sheathed. Price, plans, etc., Gielow & Orr, 52 Broadway, New York City.

No. 557—For Sale—Auxiliary yawl. An attractive craft and a good sailer. 41x28x11.7x4.7 ft. draught. Oak frames and hard pine full length planking; copper fastened; 6,000 lb outside ballast; cockpit 9 ft. long; cabin 14 ft. long, finished in bright cypress, has 6 ft. headroom; fitted with four transoms (springs), and toilet; sails good; motor 12-h.p. Inventory includes round-bottom tender, two anchors, cooking utensils, blankets, dishes, etc. Almost good as new. Sell for less than half cost. Further particulars from Gielow & Orr, 52 Broadway, New York City.



557



1235

No. 1235—For Sale—Exceptional bargain. Modern keel flush deck auxiliary schooner yacht; 65 ft. o. a., 43 ft. w. l., 15 ft. beam, 9 ft. draught. Recent build. Best of type and size available. Winner of 1908 Bermuda Race. Speed under power 8 miles. Two staterooms, saloon, etc. Cox & Stevens, 15 William Street, New York City.

* * *

No. 3471—For Sale—25-ft. launch. Equipped with K-W magneto, clutch, auto steerer aft; electric running lights and



3471

searchlight. Adjustable hood over entire cockpit. Hull, engine, and equipment in perfect condition. Gielow & Orr, 52 Broadway, New York City.



3539



405

No. 3539—For Sale—At less than cost of late improvements; auxiliary schooner, 80 ft. o. a., 19 ft. beam, 6 ft. draught; recently rebuilt and now is in first-class condition; main cabin, one double and two single staterooms. Sails, running and standing rigging, in good shape. Awning, lights, and anchors all new 1911; also 6-h.p. engine placed in launch this Fall, never used. Taking into consideration the condition of boat, launches, inventory, etc., she is the cheapest proposition on the market. Full particulars and inspection permit from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 405—For Sale—Price very reasonable; owner has larger yacht. Heavily built, auxiliary, centerboard, schooner yacht, 90.6x79x21.6x9 ft. draught. Flush deck with bulwarks. Owner's double stateroom, 14 ft. long, three single guest's staterooms, four transoms in cabin, 12 ft. long; sleep nine; also bathroom and extra toilet room; large galley and forecastle. Powerful auxiliary, Standard engine, 110-h.p., speed 7 to 8.5 knots. Full equipment of sails, boats, awnings, and outfit on deck and below. Exceptional sea-boat, having cruised from Maine to the West Indies. Further information, price, and inspection permit from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 1000—For Sale—Cruising sloop, 33 ft. o. a., 26 ft. l. w. l., 9 ft. 4 in. beam, 4 ft. 6 in. draught, outside lead ballast, new sails, 5-h.p. Cooley engine, comfortable cabin sleeping four, steers with wheel, watertight cockpit; boat is in first-class condition and has been well kept up, and is a bargain for any one desiring an able cruising boat; well equipped, including a 12-ft. tender, anchors, cables and other cruising equipment. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.



1000



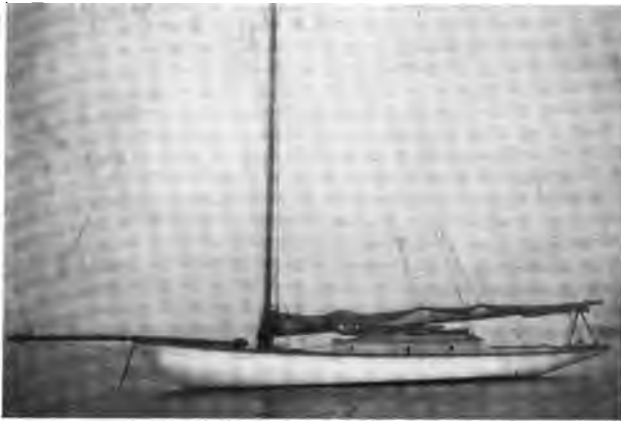
562



562

No. 562—For Sale—Fast auxiliary cruising and racing

schooner, 95 ft. o. a., 68 ft. l. w. l., 20 ft. 4 in. beam and 10 ft. draught; designed by A. Cary Smith and built by Poillion in 1901; copper fastened; 35 tons of lead ballast; completely equipped for extended cruising with full suit of Ratsey sails, new 1909, and in good condition, and also new suit of lower sails 1911; awnings, anchors, chains and cable; complete set of upholstery, bedding, etc., for cruising; accommodations consist of three staterooms, one with two berths, one with large double berth, and one with large single berth, steerage, large main cabin, captain's stateroom, galley and forecastle, three toilet rooms and berth, about 7 ft. headroom throughout; auxiliary power consists of Globe engine located in separate engine room at after end of boat, also 1½-h.p. Mianus engine, new 1911, for running electric lighting plant; two boats, including 19-ft. launch with 5-h.p. gasolene engine new 1911, finished throughout in mahogany and white enamel; standing and running rigging new 1911, new main-boom 1911; during Winter of 1911 made successful trip to the West Indies, leaving New York in January and sailing direct to Porto Rico; one of the ablest yachts of her size afloat and is absolutely sound and tight; winner of many prizes on New York and Eastern Y. C. cruises during Summer of 1911. For sale at low figure as owner has another boat. Interior view shown shows forward end of main cabin. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.



6653

No. 6653—For Sale—Very attractive cruising auxiliary sloop, 42 ft. o. a., 35 ft. w. l., 10 ft. beam, 6 ft. draught. Cabin is 12 ft. long, with a headroom of 5 ft. 11 in., and finished in white enamel. Very able, comfortable, and in good condition. Sails made in 1911. Ferro engine was installed in 1907, 7-h.p. This yacht is a particularly good-looking boat, well built, and affords an opportunity to get such a boat at a reasonable figure. Might be chartered. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 418—For Sale—Comfortable, auxiliary polemast sloop, 39 ft. o. a., 14 ft. beam, 5 ft. draught, without centerboard, 7-h.p.



418

Frisbie engine installed new 1910. Roomy cabin finished in mahogany; four berths, inclosed toilet, full length clothes



776

closet, ample locker space, large galley, etc. Complete cruising inventory including new stove, dishes, cooking utensils, compass, charts, life-preservers, tender, etc. This boat has cruised extensively and is very able. Is offered at a bargain price as the owner is building a racing boat. For further particulars apply to Krogman & Purdy, 92 State Street, Boston, Mass.

* * *

No. 3227—For Sale—Cabin launch, 37 ft. o. a., 8 ft. 6 in. beam, 3 ft. draught, 6 ft. 2 in. headroom. Cedar planking, oak frames, copper fastenings; cabin finished in mahogany; Sands' toilet and wash-basin; two extension berths in cabin. Motor 15-h.p., fitted with jump spark, dynamo, spark coil, clutch. One flat-bottom tender and complete inventory. Full particulars and inspection permit from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 776—For Sale—Centerboard knockabout, 34 ft. o. a., 24 ft. l. w. l., 9 ft. 4 in. beam, and 3 ft. 4 in. draught, built by Bowen, of Newburyport, in 1899; heavily and strongly built and in first-class condition; 1,000 lb of outside ballast, 300 lb inside; comfortable cruising boat for four, with about 5 ft. headroom; watertight cockpit and cabin about 11 ft. long; is well equipped for cruising and is offered for sale at a very low figure. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

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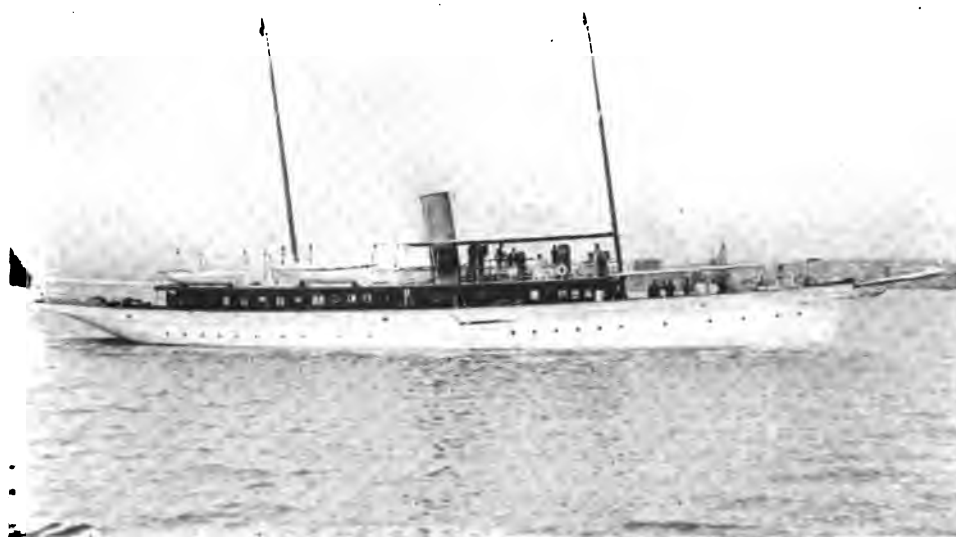
No. 1397—For Sale or Charter—Burgess-Lawley keel auxiliary yawl, 63 ft. o. a., 46 ft. w. l., 15.5 ft. beam, 8.6 ft. draught. Flush deck and cockpit. Double and single stateroom, large saloon, electric lights, etc. Speed under power 6 miles; 17-h.p. motor located under cockpit. Sails new 1911, by Wilson & Silsby. Everything in first-class order. Complete cruising outfit including 14-ft. launch. Splendid sea-boat; bargain. Apply to Cox & Stevens, 15 William Street, New York City.



3227



1397



9

No. 9—For Sale—Able, seagoing steam yacht, has crossed Atlantic Ocean; 162x132x20.1x10.4 ft. draught. Speed 11½ to 12½ knots. Unusually roomy accommodations. Forward deckhouse contains dining saloon 14 ft. 6 in. long, and steward's pantry. The after deckhouse contains an unusually large social hall, 31 ft. in length. The deck space on bridge is 12x20 ft. Below forward are roomy quarters for the crew and officers, and a large galley. Aft are five single and one double stateroom for owner and guests; also two bathrooms. Sleep seven on separate berths. Interior is attractively finished and furnished, and the headroom 6 ft. 9 in. Owing to the quadruple expansion engine and Scotch boiler, the coal consumption is low, which, with the large bunker capacity, results in an extended cruising radius. Has steam steering and reverse gear, steam heat, electric lights, and search-

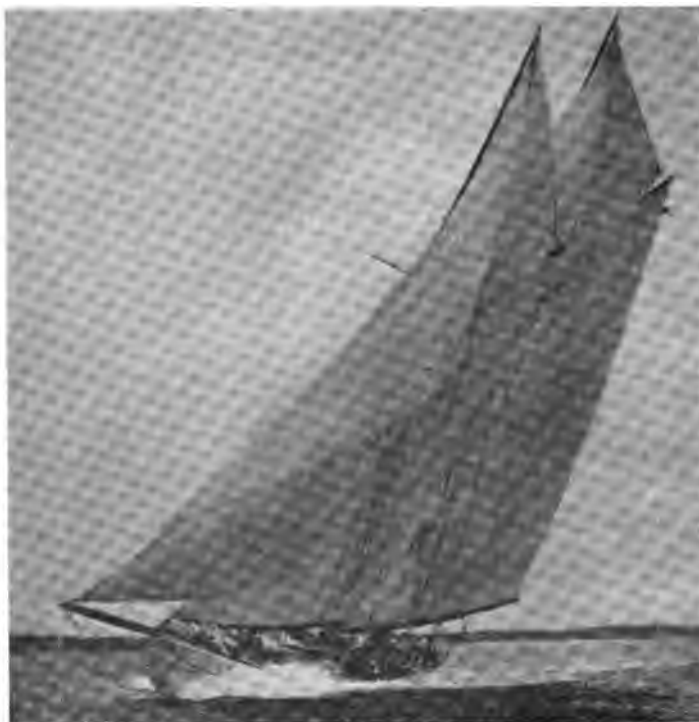
light; in fact, all modern improvements. Complete outfit below, all new 1909; also on deck, including two launches, gig, and dinghy, all new 1909. In 1908 and 1909, a large sum was spent on a thorough overhaul and numerous improvements, yacht being now even better than when launched, having Lloyds' highest rating. Full particulars, plans, etc., Gielow & Orr, 52 Broadway, New York City.

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No. 750—For Sale—Glass cabin cruiser, 50 ft. o. a., 45 ft. w. l., 8 ft. 2 in. beam, draught 2 ft. 9 in.; built by the Lozier Motor Company; very good sea-boat; fine condition throughout; marble wash-basin; toilet room; refrigerator; wardrobes, etc. Owner spent \$4,000 in improvements, lengthening same and installing new 24-h.p. Lamb motor, electric lights, new



750



1343

floor, etc., in 1909. The handsomest boat of her type on the Great South Bay in Long Island. Boat will make most desirable cruiser in Southern waters and Northern bays. Cabin and interior mahogany throughout; pilothouse and saloon contain berths for five persons; her furnishings are modern and of most improved and appropriate style, complete in every detail, and looks as good as the day she was made, as the boat has been kept in first-class condition, with first-class care. Cost \$7,500 when new. Will be sold at great sacrifice if sold at once. Can be seen at Islip, Long Island. It is now in the water. Gielow & Orr, 52 Broadway, New York City.

* * *

No. 1343—For Sale—Bargain; keel schooner yacht, 85 ft. o. a., 63 ft. w. l., 20 ft. beam, 12 ft. draught. Built at Gloucester, Mass. Strongly constructed and especially adapted for ocean cruising. Heavy oak frames and yellow pine planking. Inside and outside ballast. Has trunk cabin over after quarters and large cockpit. Roomy owner's and guests' quarters consisting of main cabin 13 ft. long with four berths and four transoms, double owner's stateroom with bathroom and two single guest's staterooms, and extra toilet room,—all sleeping eight to twelve. Also good sized galley, captain's stateroom and crew's fore-castle. Sails new 1910. Large fresh water and storage capacity.

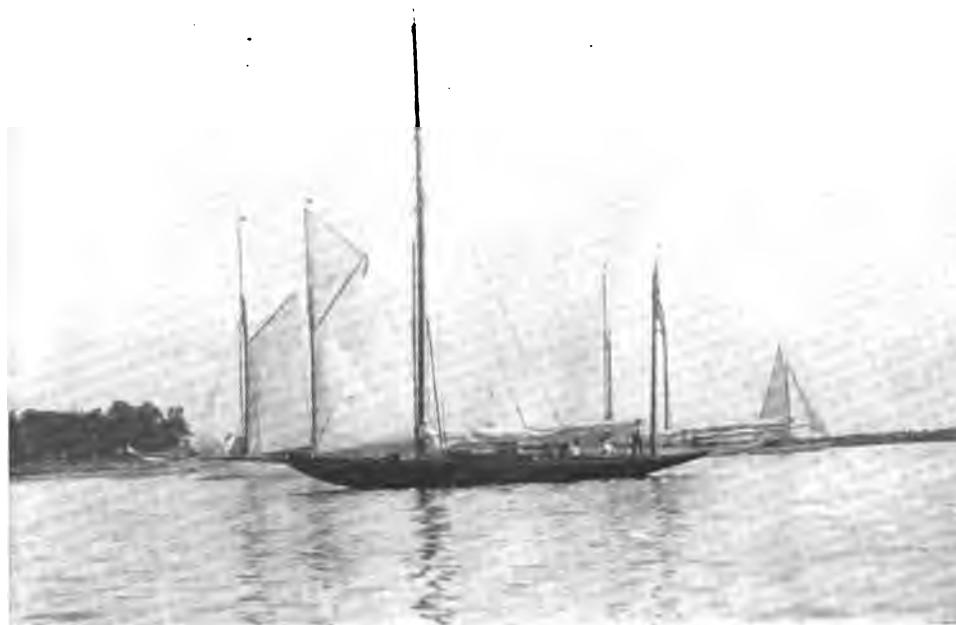
Running hot and cold water. Very complete cruising equipment below and on deck, including 18-ft. launch, dinghy, awnings, etc. Has proved herself able and weatherly under all conditions and has a very fair turn of speed. Further particulars, price and inspection permit from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 922—For Sale—Raised deck cruising launch, 30 ft. o. a., 8 ft. 6 in. beam, 30 in. draught; designed and built by Borden, of Dorchester, Mass., in 1910, for his own use; large cockpit, in which engine is located; cabin with two transoms, lockers, etc., with toilet room at forward end, about 5 ft. headroom; has been used for ferry service in rough water and is one of the ablest small launches of her size; 25-h.p. 4-cylinder Holmes engine, giving a speed of 10 miles an hour; owner will guarantee a speed of 9½ miles or no sale; is in absolutely first-class condition; stored in owner's private boathouse at Edgartown, Mass., and will be delivered in commission at Woods Hole, Mass., if desired; has tender, copper gasolene and water tanks and absolutely complete equipment in every detail. Any one desiring a high-grade semi-cruising launch can do no better than to buy this boat. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.



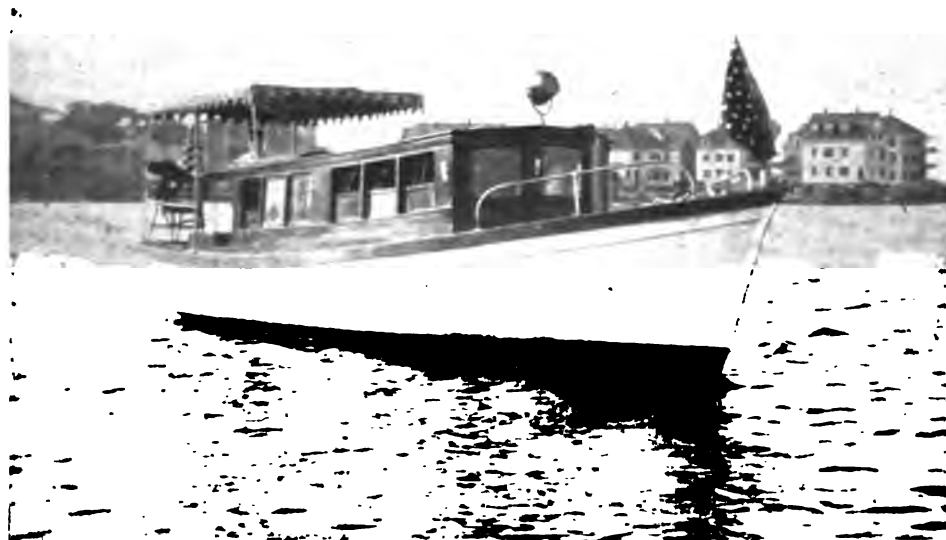
922



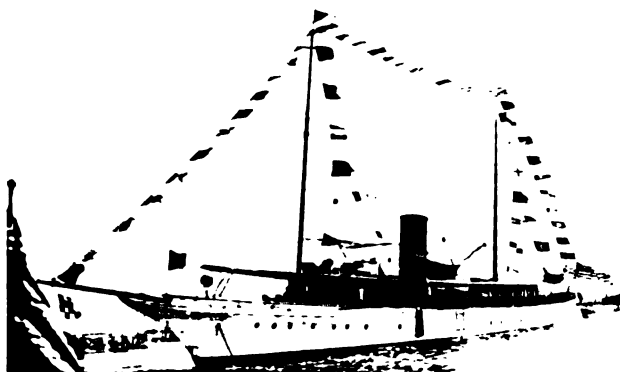
2710

No. 2710—For Sale—Attractive keel cruising and racing yawl, Gardner design, 58 ft. o. a., 37 ft. w. l., 11 ft. 6 in. beam, 8 ft. draught, 7 tons of lead on keel. Has a roomy cockpit; main cabin with three transom berths, also one stateroom and toilet. Finished in mahogany and white. Quarters for three forward. Is completely equipped in every detail. Sails in good condition, very little used. A beautiful craft; very fast. Has won numerous prizes. In best of condition. Must be seen to be appreciated. Can be bought at about one quarter of cost. Full particulars and inspection permit from Gielow & Orr, 52 Broadway, New York City.

No. 6594—For Sale—Cabin cruiser, 30x8x3; everything in first-class condition. 2-cylinder Murray & Tregurtha engine. Cabin and engine room separate. Three steering wheels: one in cabin, one in cockpit and one at stern. Searchlight and generator; electric lighting throughout. 10-ft. cabin; 5 ft. 10 in. standing room; accommodates fourteen people and sleeps four. Full equipment, with 12-ft. tender and oars; also includes cradle, clutch and reverse gear; water jacket muffler. Price \$1,000. Reason for selling, owner has bought a 90-ft. boat. Will be ready for inspection last week in April, or communicate with Charles R. Mason, Market House, Salem, Mass.



6594



107

No. 107—For Sale—Exceptional Opportunity—American-built modern, fast 170-ft. steel steam yacht in perfect condition. Two deckhouses, five staterooms, three bathrooms. All hardwood finish. Complete equipment. For quick sale will accept very low figure. Full plans and particulars on application to Cox & Stevens, 15 William Street, New York City.

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No. 1000—For Sale—Cruising power yacht, 112x12.6x4 ft. draught. Five double and two single berths; shower bath. The



1000

100-h.p. engine gives her a cruising speed of 13 miles. Inventory practically complete, including 15-ft. mahogany launch and



908

17-ft. cedar skiff. Yacht in excellent condition. Can be run with small crew. For further particulars and inspection permit write Gielow & Orr, 52 Broadway, New York City.

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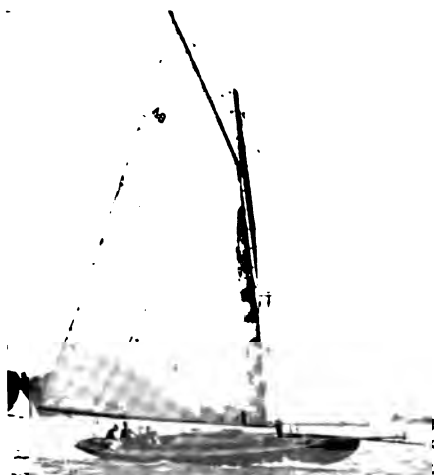
No. 6584—For Sale—Fast, able, well-known knockabout, 40 ft. o. a., 25 ft. w. l., 10 ft. beam, 6 ft. draught; mahogany double planked; 3 ton lead outside, sails, rigging and inventory in A-1 condition. Price reasonable; full particulars from George E. Carroll, 17 Moseley Street, Dorchester, Mass.

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No. 908—For Sale—Auxiliary schooner, 70 ft. o. a., 17 ft. 3 in. beam, 9 ft. draught. An excellent sea-boat, very commodious and in good condition. Engine good as new. Saloon 8 ft. long, 6½ ft. headroom. Double and two single staterooms, two 8-ft. transoms in cabin. Sails good. Well found, including launch and dinghy. Gielow & Orr, 52 Broadway, New York City.

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No. 6776—For Sale—Single-handed raised deck cruiser. 28 ft. o. a., 7 ft. 2 in. beam, 2 ft. draught. Launched 1911. Extra heavy construction. 8½-ft. self-bailing cockpit contains steering gear and motor control forward. Cabin berths four people. Toilet and galley at after end. Interior gives 5 ft. 2 in. headroom, neatly finished in white enamel panels. Electric lights. 10-h.p. Racine engine; speed 9 miles. Completely equipped including 12-ft. tender. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.



6584



6776

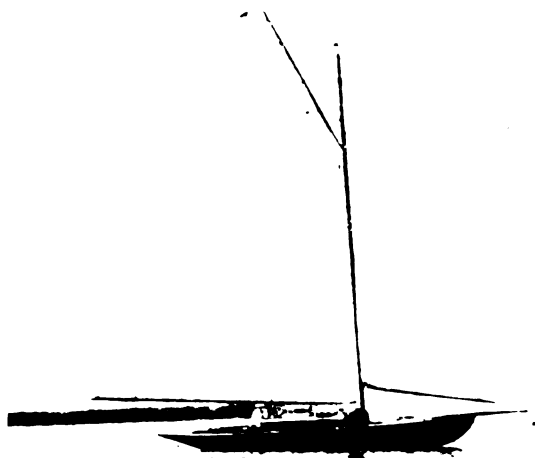


548

No. 548—For Sale—Twin-screw. A comfortable and roomy cruiser. 65x11x3 ft. draught. Pilothouse and two cabins, each containing two berths; can be shut off by doors making three private rooms. The cabins are separated by a dressing room on one side and toilet on opposite side with passageway between same. The after cabin being used as dining room. Two 45-h.p. 4-cylinder engines, electric light, etc. Full particulars from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 1401—For Sale—Fast cruising and racing sloop; Gielow design; 30 ft. w. l., 9 ft. 4 in. beam, 6 ft. 5 in. draught; double



1401

planking; two berths, lavatory, and toilet in cabin. Sails in good condition. Mahogany cabin trunk and cockpit trimmings.



11139

Price attractive. Plans, etc., Gielow & Orr, 52 Broadway, New York City.

* * *

No. 2918—For Sale—Cruising sloop, 40x28x8x6.6 ft.; built of oak and yellow pine; two transoms 10 ft. 6 in. long in cabin; sails new in 1910; standing rigging in good condition; cabin trunk of oak; toilet; good equipment. Gielow & Orr, 52 Broadway, New York City.

* * *

No. 11139—For Sale—Keel, jib and mainsail. 24 ft. o. a., 14 ft. w. l., 6½ ft. beam, 3½ ft. draught. Built 1902. One of the Manhasset Bay Y. C. one-design class. Good sized cockpit suitable for day sailing. 1,500 lb lead on keel. Equipment includes cedar skiff. Ideal type for boys to learn handling sail boat. Price \$250. Apply to Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 2013—For Sale—Herreshoff sloop, 46.6x30x10.10x5.4 ft. draught. In excellent condition and an A-1 sea-boat. Double planking of cedar and yellow pine; brass and copper fastenings; four berths in cabin, also toilet; sails in good condition. Further particulars from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 6573—For Sale—Semi-speed boat, 30x5 ft.; cedar planking; large open cockpit for chairs; Frisbie engine, 4¾x5½, 4-cylinder, 4-cycle; jump-spark, Connecticut coil, K-W low tension magneto, belt driven, force-feed oiler, Paragon reverse gear. Complete equipment of tools, life-preservers, whistle,



2918

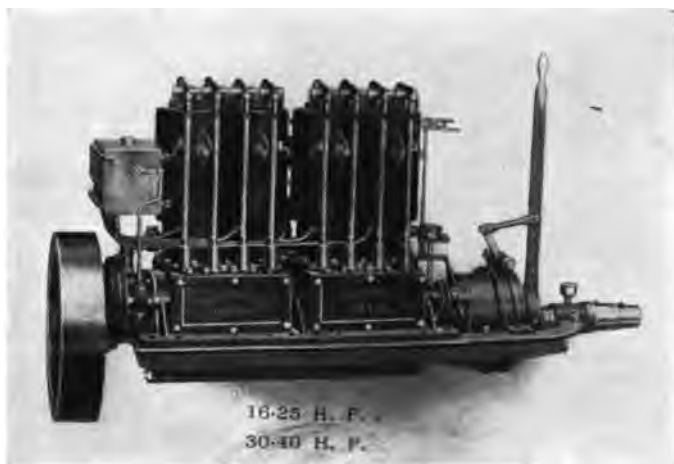


2013



6573

bell, canvas cover for cockpit, etc. Speed 18 miles. Price \$875. Cost the owner almost twice this amount. Record for reliability that cannot be beaten on the Connecticut River.



6573

May be seen at Markhams, Portland, Conn. For further particulars address Edward S. McAll, care H. A. Moyer, Syracuse, N. Y.

No. 6533—For Sale—Open launch, 22½x6x2½ ft. draught; heavy construction; hull oak, cedar sheathing, copper fastened; deck oak finished bright. Hull painted white, copper paint on bottom. Boat used two months during Summer season. Housed for remainder of year. Engine 5-h.p. Hall at 350 r.p.m., 4-cycle,



6533



6538

reversible propeller. Boat in first-class condition with full equipment—ready to run. Owner desirous of purchasing larger boat. Boat may be seen at Sampson's Boathouse, Ocean City, N. J. Address Box 3412, Rudder Office, 1 Hudson Street, New York City.

* * *

No. 6538—For Sale—\$375. Knockabout cabin cruiser, 32 ft. o. a., 21 ft. w. l., 7½ ft. beam, 4.7 ft. draught; cast keel 4,000 lb. This is a handsome, up-to-date boat, after the Sewanhaka type, but built a little heavier for cruising. Oak frame, cedar planking; hardware and blocks bronze, rigging steel. Two suits sails with spinnaker and boom; signal and anchor lights, two anchors and cables and cruising outfit. Cabin finished in oak, two wide cushioned lockers with room forward for single mattress. Cockpit seats eight, self-bailing. This is a fine sailing boat, fast and perfectly balanced; a fine, safe cruiser for a boy—and a bargain. Apply to Dr. T. V. Ketcham, Stamford, Conn. Phone 1378 or 344.

* * *

No. 6534—For Sale—Speed runabout Billiken II, 25x4 ft.; speed 18 miles per hour; automobile control. Hull, double-planked cedar, canvas between; copper fastened throughout; mahogany deck and fittings; metal hood over engine. Engine, 3-cylinder, 19-23-h.p. Vim, Atwater-Kent ignition, Lavigne mechanical oiler, Paragon clutch, rear starter. Complete set of tools, wicker chair for aft cockpit, Janney-Steinmetz 25-gal. pressed steel tinned tank, Hyde 3-blade propeller, Columbian self-aligning strut, bronze 1½-in. shaft. This is a beautifully built boat and should be seen to be appreciated. Low price, as owner goes abroad this June. Can be seen in New York City by appointment with K. B. Lamb, 360 West 22d Street, New York City.



6534



6535

No. 6535—For Sale—Cruising motor yacht, bridge deck type, l. o. a. 75 ft., beam 14 ft., draught 4 ft., speed 13½ miles per hour. Of high-class construction and in first-class condition. The machinery is a 75-90-h.p., 6-cylinder, 8x10 Standard motor, make-and-break ignition. Copper fuel tanks installed in heavy copper pans with gasoline supplies running outboard. This cruiser is exceedingly roomy, gracefully designed and an excellent sea-boat, economical to run and drives very easily. Layout consists of very roomy engine room and crew's quarters, also crew's toilet forward. Next aft is located the galley about 5 ft. in length by the full width of the boat, containing coal range, ice-box, sink, dish racks, etc. Next aft to port is passage containing extension berth which can be partitioned off and used as small stateroom. Abreast of this passage to starboard is large double stateroom finished in mahogany, containing double berth and dresser. Next aft is another double stateroom, finished in the same way, and abreast to port is a large bathroom with passageway separating. Next aft is a large well-ventilated cabin containing a buffet, extension berths, lockers, etc., with companionway leading to after deck. She has one 16-ft. launch and one dinghy. Deck outfit is complete, including anchors, lines, etc. Hauled out near New York. Full

information, plans and photographs, permit for inspection and any other information will be supplied by Whittelsey & Whittelsey, 11 Broadway, New York City.

* * *

No. 6537—For Sale or Exchange for Real Estate—Semi-speed boat, 25x4.10 ft., 17-h.p. Ferro engine, Connecticut coil, Columbian propeller under deck forward, Harthan reverse gear, auto steering wheel; engine control from deck. Cockpit seats seven. 25-gal. gas tank; hull is built in best manner, planking of cedar; deck, coaming and seats of mahogany; all fittings are of brass. Linoleum on cockpit floor. This boat has a low rating and has won many prizes. Can be inspected any time at the address below. Alfred E. Chapman, 76 W. Merrick Road, Freeport, L. I., N. Y.

* * *

No. 6531—For Sale—Raised deck cruiser, 28.6x7.6x2.6 ft. Fully equipped; 15-h.p. motor and high-tension magneto. May be seen within an hour's ride of the City. For further particulars apply. J. W. Straub, 241 Front Street, New York City.



6537



6531

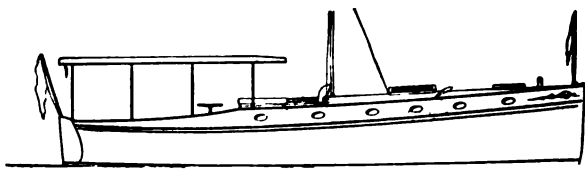


6536

No. 6536—For Sale—Crosby auxiliary cat sloop, 26 ft. o. a., 10 ft. beam, 2 ft. 6 in. draught. Excellent cruiser, very fully equipped. Sleeps two on wide transoms; toilet, Shipmate stove, fresh-water tank, two anchors, mushroom mooring, dinghy, spare suit sails, Palmer engine 5-h.p., watertight cockpit; steers with wheel; cushions, blankets, galley outfit, ice-box, lamp, fire extinguisher, side lights, set of tools, life-preservers, etc. Reason for selling, have larger boat. May be inspected at New Bedford. Inquire Morgan Barney, New Bedford, Mass.

* * *

No. 6541—For Sale—Change in plans compels sacrifice of brand-new raised deck cruiser, 32x8.6x2.6 ft., now nearing completion by recognized builder. Solidly constructed, oak frame, cedar planking, copper fastened; 25-h.p. Ferro engine, builder guarantees speed over 10 miles. Cabin 20 ft. long, finished in



6541

white enamel, contains two staterooms and galley, toilet, clothes closets, dish closets, ice-box, etc. Cockpit 12 ft. long, finished bright in oak, lazyback seat at stern. Bargain at \$1,500. Fytler, 113 West 126th Street, New York City.



6532



6539

No. 6532—For Sale—Cruising and racing sloop, very fast and able; l. o. a. 33 ft., l. w. l. 21 ft., beam 7 ft. 6 in., draught 3 ft. 6 in.; keel and Tobin bronze centerboard. Good freeboard, roomy cockpit and fine cabin accommodations; two large and very wide transoms for sleeping; water tank, ice-box, gas plant for lighting purposes. Boat and sails in A-1 condition. Has been a very consistent winner in Fourth Division Long Island Sound Handicap Class, Champion 1910, and winner of Larchmont Series Prize 1911. Price \$650. Boat at New Rochelle, N. Y. Address W. R. B., Room 1301, Silversmith's Bldg., 17 Maiden Lane, New York City.

* * *

No. 6539—For Sale—Fast keel knockabout, designed by George Owen and built in a most substantial manner. Dimensions 32x20x7.5x5; outside lead 3,000 lb; sail area 550 sq. ft. Roomy cabin sleeps five. Inventory includes cabin and cockpit cushions, anchor and cable and 8-ft. tender. She is fast, stiff and a fine sea-boat. A desirable boat for racing or cruising. Price \$400. Inspectable near Auburn. F. G. Allen, 78 Genesee Street, Auburn, New York.

* * *

No. 6540—For Sale or Charter—Or might consider exchange for a power yacht. The well-known sailing yacht Temeraire, length o. a. 50.44 ft., length l. w. l. 29.82 ft., draught 6.81 ft., beam, extreme, 10.20 ft. Designed and framed by William Fife, Scotland, built by James Andrew, Oakville, Ontario, 1905. Sloop rig; Ratsey sails for racing; also yawl rig for cruising. Complete cruising conveniences, including electric lighting; power dinghy. In excellent condition. Owner selling, owing to not being able to use boat, not now living on yachting waters. Can be inspected at Kingston, Ont. Apply to Colonel R. W. Rutherford, Ottawa, Ont.



6540



6548

No. 6548—For Sale—Second-hand dory hull, all ready and fitted for motor, \$75 and up. Illustration shows a 19-ft., 5.6 ft. hull, with small deck forward fitted for motor, complete \$100. A fine seagoing launch, at an exceptionally low price. Will fit with sail and spars at a slight additional cost. J. C. G. Bonney, 21 Platt Street, New York City.

* * *

No. 3883—For Sale—Gasolene express yacht; dimensions, 70 ft. on deck, 10 ft. beam, 3 ft. draught. Built by F. S. Nock



3883

in 1906. Accommodations include two staterooms, saloon, galley and chart room. Cabins finished in white enamel and

mahogany. Motor is a 60-90-h.p. Speedway, new in 1911, giving the yacht a speed of 14 to 15 miles per hour. It is electric lighted throughout and has searchlight. Yacht is in first-class condition and is offered at a reasonable price. Is an exceptional good sea-boat. Inspectable at New York. For further particulars, price, etc., address Frank Bowne Jones, Yacht Agent, 29 Broadway, New York City.

* * *

No. 6542—For Sale—Fast cruising keel knockabout, 30x19x8x4½. About 5 ft. headroom in cabin, with extra wide transoms and berth forward. Toilet and galley forward separate from cabin. Have cruised five persons comfortably. Good inventory. 11½-ft. tender. Spars and standing rigging good condition. Running rigging new last Summer. Two suits sails, one suit practically new, only used few months. Spinnaker, storm jib and awning, two anchors 25 and 45 lb, two rode new last Summer. Inspectable near Boston. No reasonable offer refused. Address L. T. Allen, 402 East 5th Street, South Boston, Mass.

* * *

No. 1993—For Sale—Centerboard cruising schooner, 84 ft. o. a., 56 ft. w. l., 19 ft. beam, 8 ft. draught; designed and built by Lawley. Outside lead ballast 16 tons, very substantial construction. Liberal accommodations, consisting of large double stateroom aft, quarter stateroom, very large main saloon, two staterooms forward, large galley and forecabin, two toilets, centerboard below the cabin floor. Sails by Ratsey; spars, standing and running rigging all completely new 1908. Boat is in splendid condition, completely equipped for cruising; has launch and dinghy. Offered for sale at reasonable price. Inspectable near New York. Price, particulars on request, Frank Bowne Jones, 29 Broadway, New York City.



6542



1993



5699

No. 5699—For Sale—Hunting cabin launch Valotta, 35 ft. long o. a., 10 ft. beam, 3 ft. draught. Oak frame, cypress planking; copper fastening over burrs. Canoe stern; finished in quartered oak in cabin. Electric lights. Sleeps four; ample headroom; cabin divided into three sections. Aft section contains engine and galley, with plate-glass panel in door; middle section contains two full-length berths, toilet, and locker closets; forward section two berths and doors entering both toilet and clothes locker. Fully equipped with sail, mast, gaff, awning, anchors, cables, charts, lights, compass, etc. 24-h.p. 4-cylinder, 4-cycle Lamb engine. Storage batteries, Apple dynamo, jump-spark coil, and attachments. Boat built by Judkins, East Providence, R. I. A fine sea-boat. Owner has cruised to Florida and return, also along the coast. Reason for selling, owner desires to give up boating and is well along in years. Cost over \$3,000. Has brass rails and awning frames. Boat in first-class condition ready for immediate service upon delivery. Also one 10-ft. flat-bottomed skiff, natural finish, brass screw fastening. This launch is excellent for family use, having ample room for four to cruise in. Lead ballast inside under floors. Has two gasoline tanks in cockpit outside of rail under deck, 65 gal. each. Two water tanks 40 and 15 gal. Engine handled from cockpit under control of man at wheel. Boat can be seen at Fall River, Mass. Price \$1,600. Address all inquiries to Frank Bowne Jones, Yacht Agent, 29 Broadway, N. Y. City.



6545

No. 6545—For Sale—Crosby-built auxiliary yawl, Golden Girl, 33 ft. o. a., 28 ft. w. l., 10 ft. beam, 3 ft. 8 in. draught; both inside and outside ballast, a ton outside. Bright finished throughout, large and comfortable cabin, 5 ft. 8 in. headroom, sleeps three with ease. Also awning for self-bailing cockpit, which is of good size, and movable slats forming two good extra berths outside. Toilet room with Sands' toilet, mirror and small wash-basin. Galley forward, especially good denatured alcohol stove, also two kerosene stoves. Water tank forward, running water within reach of galley stove. Galley and cabin lighted both by kerosene lamps and small electric lights. Rigging and sails in best of condition, mahogany wheel, Gypsy windlass, mahogany dinghy, plush cushions inside, pneumatic cushions outside (a new and complete set), anchors, cables, lights, full table set even including table linen, completely equipped for cruising. Especially good 6-8-h.p. heavy-duty motor, reverse gear and clutch, all controls within reach at wheel; two seamless gasoline tanks 25 gal. each out of sight under cockpit seats; 3-blade propeller, speed over 6 miles. Owner going abroad and will have no use for boat this Summer, so she will be sold at a reasonable price. Inspectable at the Crosby boatshops, Osterville, Mass. For further information apply to Frederic L. Day, 28 Vanderbilt Hall, New Haven, Conn.

* * *

No. 6661—For Sale—Crack Herreshoff 25-footer, 42 ft. o. a., 25 ft. w. l., 10 ft. beam, 4 ft. draught. Centerboard, all ballast, lead, outside. This yacht is one of the fastest of her size afloat, and is besides a superlatively good cruiser or afternoon sailer. 5 ft. headroom, toilet. Built in very best possible manner of mahogany and fastened with brass screws. Complete inventory, including two suits of sails, extra mast and gaff, cushions, and everything necessary for complete equipment. This is an opportunity to get an absolutely perfect yacht of her class at a very reasonable figure. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

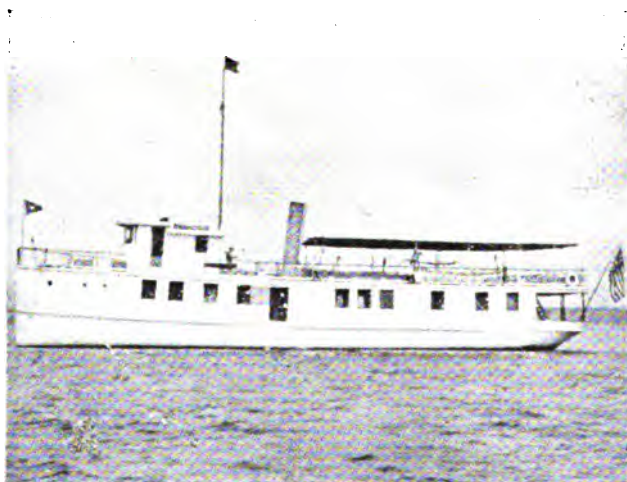


6661



6543

No. 6543—For Sale—90-ft. power houseboat Natomah. This boat is now on the market, together with all her interior furnishings, and particulars may be obtained through THE RUDDER or any yacht broker. As will be seen from the illustration the boat is of a sturdy, wholesome type, a feature being the spa-



6543

cious upper deck, which provides the maximum of comfort. The hull is constructed of wood and the craft is of 99 gross tons. She is 90 ft. o. a., w. l. 84 ft. 4 in., breadth of beam 17 ft., depth of hull 5 ft. 2 in., and draught 2 ft. 6 in. The boat was designed by Messrs. Cox & Stevens, of New York,



6660



4490

and built by Nielson at Baltimore in 1906. The power plant consists of a Murray & Tregurtha triple-expansion three-cylinder, 5, 10, 15 by 8 engine, and Roberts water-tube boiler. The boat may be chartered to responsible parties, and plans of the craft and figures will be submitted upon application. Thomas Courtis, 121 Beverly Street, Boston, Mass.

No. 6660—For Sale—Schooner yacht, 54 ft. o. a., 42 ft. w. l., 15 ft. 6 in. beam, 6 ft. 6 in. draught. Two staterooms inside, finished in mahogany and sycamore; large galley, two toilets; one launch and one tender. 15 tons of lead on keel. Sails and rigging two years old. This boat has a fine inventory. Price very reasonable, affording an unusual opportunity to secure a sensible, staunch cruising craft. Inspectable near Boston. Apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

No. 4490—For Sale—Modern gasoline cruiser, length 40 ft. o. a., beam 9 ft., draught 3 ft. 3 in. Designed by John F. Small and built at Maine in 1908. Steered and controlled from bridge. Accommodations include double stateroom, saloon, galley and forecabin. Has full headroom. Motor is a 3-cylinder, 4-cycle Jager, 6½x8-in. cylinders, rated at 25-h.p. Boat has speed of 10 to 11 miles. Desirable boat in every way and has been splendidly kept up. Inspectable at New York. For price, further particulars, etc., address Frank Bowne Jones, Yacht Agent, 29 Broadway, New York City.

No. 2208—For Sale—18-ft. knockabout; dimensions 31 ft. on deck, 18 ft. w. l., 7 ft. beam and 5 ft. draught. Designed by Crowninshield and built by Graves. All lead ballast outside, about 1,000 lb. Has cabin under flush deck. Three suits of sails. Built to the rules of the Knockabout Association. Is exceptionally fast. Boat is in good condition, and offered at a reasonable price. For further particulars, apply to Frank Bowne Jones, Yacht Agent, 29 Broadway, New York City.



2208



2966

No. 2966—For Sale—Modern flush deck keel auxiliary schooner; dimensions 93 ft. on deck, 63 ft. w. l., 19½ ft. beam, 9½ ft. draught; designed by Binney and built by Lawley. 18 tons outside lead. 4-cylinder 6x8 Standard motor. Accommodations include saloon, two double staterooms and bath, finished in mahogany and enamel. New sails by Griffin, City Island, last season. Boats include launch with new 6-h.p. Palmer motor, dinghy and gig. The yacht is in A-1 condition throughout, having been kept up irrespective of expense. Is a splendid cruiser and fast, and an excellent sea-boat, being the winner of the last Bermuda Race, making the fastest run on record. Owner is desirous of selling on account of having purchased a steam yacht. For further particulars, plans, etc., apply to Frank Bowne Jones. Yacht Agent, 29 Broadway, New York City.

* * *

No. 3475—For Sale—Keel, cruising and racing sloop, 60x38.4x11.4x7.10 ft. draught. Our design; built 1909. Oak frames; double planking; cedar inside, mahogany outside; copper fastened. Best possible construction. Narrow trunk cabin and cockpit. Main cabin 7 ft. 9 in. long, 6.2 ft. headroom with two transom berths, etc. Interior finish, white mahogany trim. Owner's stateroom aft with two berths. Toilet room, galley,



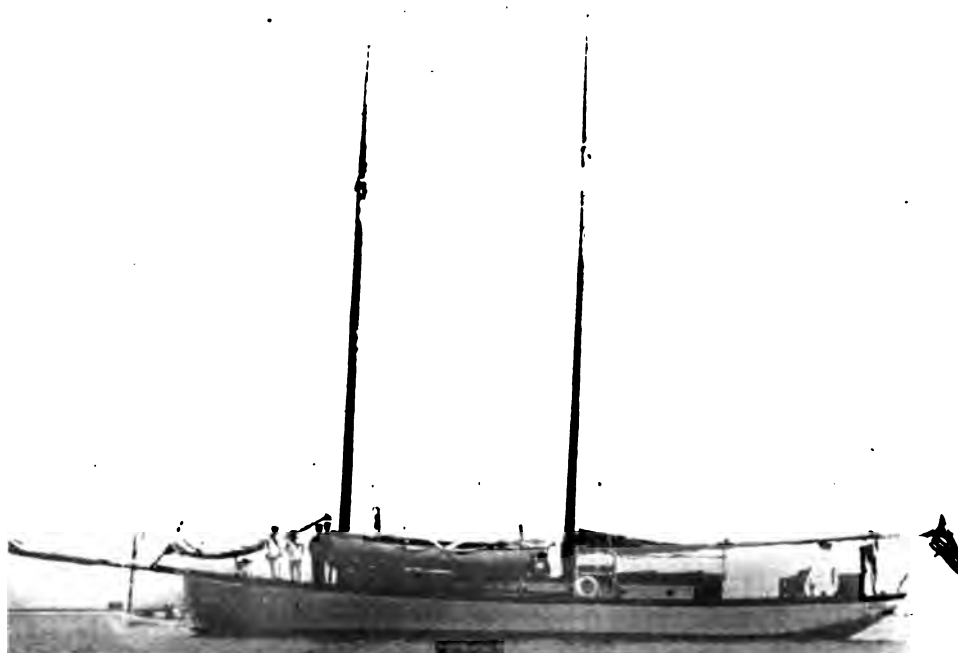
3475

forecastle with three berths and toilet. Completely and handsomely finished for cruising below and on deck, including electric lights, full suit of working and racing sails, round-bottom dinghy, etc. Price, etc., Gielow & Orr, 52 Broadway, New York City.

* * *

No. 622—For Sale—Auxiliary cruising sloop, built on exact model of Gloucester fisherman in 1905 by Ed Leeman, of Round Pond, Me., very heavy construction, cedar plank, oak keel and frames, canvas covered deck, 32 ft. o. a., about 27 ft. w. l., 10.6 ft. beam, and 5.6 ft. draught, 5,100 lb of lead and iron ballast, including 700 lb of inside lead. Watertight cockpit, engine under, entering cabin toilet room to port, large closet to starboard, roomy cabin with two fixed bunks and two comfortable transoms, very large galley forward with coal stove, ice-box and berth, full headroom throughout; is absolutely sound and tight; has always had exceptional care; 7½-h.p. 2-cylinder Palmer engine, new 1909 completely equipped, very able with high bow, double headrig; sailed from Boston to Yarmouth, N. S., 250 miles, in 47 hours, howe-to five hours; stands owner over \$1,800, sails in good order, sailing tender. Apply to J. G. Alden Yacht Agency, 27 Kilby Street, Boston, Mass.





3429

No. 3429—For Sale—Shoal-draught auxiliary schooner, Gielow design. 64 ft. 3 in. o. a., 16 ft. 9 in. beam, 3 ft. draught; good freeboard; main cabin is 13 ft. in length fitted with 12-ft. transoms on each side; also large stateroom, giving sleeping accommodations for six to eight in owner's party; bathroom, toilet, etc., interior finished in mahogany and white. A 30-h.p. motor gives the yacht a speed of 8 miles. Completely equipped, including two launches and dinghy. The yacht has proved to be very seaworthy, having been thoroughly tested out in rough weather. Plans and full particulars from Gielow & Orr, 52 Broadway, New York City.

* * *

No. 7291—For Sale—Handsome, very able seagoing cruising

yacht, 92 ft. o. a., 89 ft. w. l., 13 ft. beam, 4 ft. 2 in. draught. 20th Century motor, 6 cylinders, 9x10, nominal h.p. 105. The best appointed, fitted and furnished yacht of her size on the Atlantic Coast. She has an unusual amount of deck space. Accommodations large and liberal, consisting of large saloon, two staterooms and bathroom, in addition to comfortable crew's quarters, galley and well-ventilated engine room. Brass bedsteads in each stateroom, and furnished with all linen and everything of the best. Electric lighted throughout, storage battery system generated by dynamo. Fitted by Tiffany and W. & J. Sloane, of New York. Solid mahogany and beautifully finished throughout. (Examine photograph.) Yacht open for inspection. For full particulars apply to Tams, Lemoine & Crane, 52 Pine Street, New York City.



7291



247

No. 247—For Sale—Keel auxiliary sloop, 50 ft. o. a., 31 ft. l. w. l., 13 ft. beam, 7 ft. 8 in. draught; designed and built by Brown in 1904; roomy main cabin with two fixed bunks with transoms in front, closets at after end and sideboards with drawers under at forward end, two staterooms, engine room and galley with berths forward for two men, roomy toilet room and toilet forward for crew; 13-h.p. Knox engine (2-cycle, 2-cylinder) giving speed under power of about 6 miles an hour; interior finished in white enamel and mahogany; 6 ft. 2 in. headroom under cabin house; 10,000 lb outside ballast. Boat is very heavily built and one of the ablest cruisers of her size. Will be sold at a low figure for immediate sale. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

* * *

No. 11181—For Sale—(Picture shown of similar boat). Centerboard jib and mainsail; 25 ft. o. a., 16 ft. w. l., 7½ ft. beam, 2½ ft. draught. About 800 lb ballast. Launched 1906, by L. D. Huntington from Mower's design. Very able—fas-

tened with brass screws. Always well owned and raced successfully. Winner of one-design prize in her class 1908, taking five out of six races. In two starts 1911 got one first prize. Completely equipped. Ideal type for boys to learn sailing. Excellent day cruiser. Low price. Will trade for 18 to 21-ft. one-design class. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 10847—For Sale—Polemast centerboard cruising yawl, 47 ft. 10 in. o. a., 30 ft. w. l., 13 ft. beam, 4 ft. draught. Launched 1909. Self-bailing cockpit. Extra heavy construction. Two staterooms. Main saloon with two 8-ft. transom berths. Toilet room, galley, berth in foc'sle, crew's w. c. Interior neatly finished in mahogany and white enamel, gives 6 ft. 2 in. headroom, well lighted and ventilated. Complete cruising inventory, including two tenders (one launch), binnacle and compass, etc. Very able and consistent cruiser, handled with one paid hand. Owner anxious to sell. Low price. Address Stanley M. Seaman, 220 Broadway, New York City.



11181



10847



6662

No. 6662—For Sale—Cruising sloop yacht, 37 ft. o. a., 24 ft. 6 in. w. l., 9 ft. 8 in. beam, 6 ft. draught. Extra heavily built, in 1901, for cruising. Good sailer and a very able sea-boat. Uncapsizable, having 4,260 lb iron on keel and about 500 lb iron inside ballast. Spacious cabin, 12 ft. 4 in. long, about 5 ft. 3 in. headroom; toilet, compass, two anchors, two cables, cushions, dishes. This yacht has had but little use and is in fine condition. Price very reasonable, as owner is unable to use her. For further particulars address Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.

* * *

No. 1045—For Sale—Flush deck cruising auxiliary schooner yacht, 97.4 ft. o. a., 70 ft. w. l., 19.6 ft. beam, 8.6 ft. draught. Designed by us and substantially built by Lawley. Large saloon, three staterooms, two baths, three w. c's. 6.6 ft. headroom. Large galley and pantry. 600-gal. water tank. Carries three boats, cutter, launch and dinghy. Awning, Ratsey sails and rigging in good condition. 75-h.p. Simplex motor, speed 8 miles. 170-gal. gasoline tank. Fully found in all departments. Very fast under sail and an exceptionally able and seaworthy craft. Full particulars from Tams, Lemoine & Crane, 52 Pine Street, New York City.

* * *

No. 7877—For Sale—Modern raised deck twin-screw cruiser, 90 ft. o. a., 83 ft. w. l., 17 ft. beam, 3.6 ft. draught; built by Lawley, 1909. Very well constructed. Two 60-h.p. Craig motors; speed 12 miles. Carries 1,200 gal. of gasoline and three boats, one a launch. Large saloon and pantry on deck. Three good-sized staterooms, valet's room, bathroom, three w. c's. and dressing room; large galley. Complete electric light plant. Hot-water heating system. Engine room and crew's quarters well ventilated. Price attractive. Full particulars from Tams, Lemoine & Crane, 52 Pine Street, New York City.



1045



7877

No. 147—For Sale—Very fast Sonder boat in A-1 condition, length o. a. 34 ft., w. l. 19 ft. 6 in., beam 6 ft. 10 in., draught 5 ft. 6 in.; designed by Boardman and built by Fenton, 1909.



147

Has always had best of care and will be sold at a low figure. Apply to John G. Alden, 27 Kilby Street, Boston, Mass.

* * *

No. 6707—For Sale—Single-handed cruiser, 31 ft. o. a., 8 ft. beam, 2½ ft. draught. Launched 1910. 9-ft. cockpit with steering gear and engine control protected by awning on pipe stanchions. Cabin berths four people comfortably; toilet; galley; 15-h.p. 4-cycle Monarch engine in perfect condition; speed 10



6707



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6547

miles per hour. Inventory includes 8-ft. dinghy, compass, etc. Able and consistent cruiser offered at reasonable price. Address Stanley M. Seaman, 220 Broadway, New York City.

* * *

No. 6547—For Sale—A safe boat; Bonney whaleboat John and Annie, 31-ft. day cruiser, mahogany finish, large cockpit, small cabin. This boat is practically new. The power plant is a 15-h.p. 4-cycle, 2-cylinder Nichols kerosene engine. This is a perfect-running engine without noise, smell or vibration. Cost of fuel half that of any gasoline engine. This boat lies at 75th Street and Hudson River at May's Boathouse, and will be shown by Mr. Bonney any day by previous appointment. Address John C. G. Bonney, 21 Platt Street, New York City.

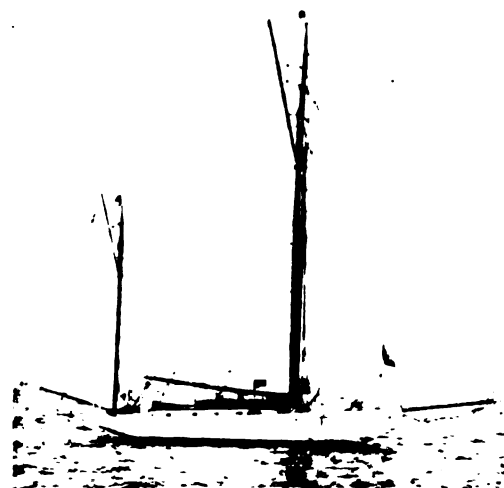
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No. 1027—For Sale—Well-known steel racing and cruising schooner yacht, 99 ft. o. a., 68 ft. w. l., 20 ft. 4 in. beam, 12 ft. draught. Designed by A. Cary Smith, and built by Townsend & Downey. 39 tons of lead ballast. Ratsey sails. In good condition. Good saloon, four staterooms, bath, four w. c.'s.; galley and crew's quarters. Very fast under canvas, and well-known for her racing record. Exceptionally good sea-boat. Completely equipped for cruising. For further particulars apply to Tams, Lemoine & Crane, 52 Pine Street, N. Y. City.

* * *

No. 6663—For Sale—Handsome keel yawl, 45 ft. o. a., 30 ft. w. l., 11 ft. 6 in. beam, 6 ft. 6 in. draught. Built by Lawley in 1898. Very best construction and fittings. Over 6 ft. headroom in large cabin finished in white enamel and mahogany. Stateroom, toilet room and large galley. This yacht is an extra good, able sea-boat, is a fine sailer and well worthy of the attention of any one in want of a stylish and comfortable cruiser. Everything in excellent condition. Price very reason-

able. For further particulars apply to Hollis Burgess Yacht Agency, 15 Exchange Street, Boston, Mass.



6663

No. 1747—For Sale—Centerboard knockabout, 21 ft. w. l., 31 ft. o. a., 9 ft. beam, 3 ft. draught; designed by Small Brothers, built by Pendleton; very strongly built. Cabin finished in mahogany, bright decks. Wilson & Silsby sails, all new rigging last year; has full cruising equipment. A very able, comfortable cruiser with good turn of speed; has won several races, and cruised from New York to Newport. Price reasonable. Frank Bowne Jones, 29 Broadway, New York City.



1027



1747



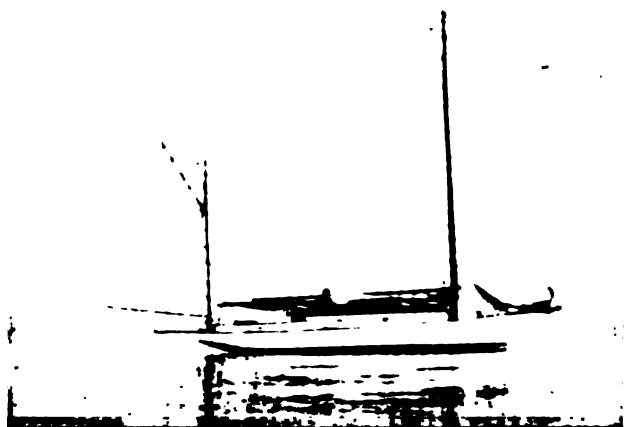
1508

No. 1508—For Sale—One of the well-known Buzzards Bay 30-footers, 46 ft. 6 in. o. a., 30 ft. w. l., 10 ft. 10 in. beam, 5 ft. 4 in. draught. Best construction by Herreshoff. Sails new 1099; also extra suit. Full headroom. Comfortable sleeping accommodations for four, toilet room, etc. In first-class condition. This class of sloops is generally considered the best for general cruising and racing turned out by Herreshoff. Price very low. Apply to Cox & Stevens, 15 William Street, New York City.



3655

No. 3655—For Sale—Fast centerboard sloop or cat, 34.6 ft.



3205



7146

o. a., 12.6 ft. beam, 12 ft. draught. Winner of Championship of Narragansett Bay 1907, Block Island Race 1910, and many other races. Very able and comfortable cruiser. Has four large bunks in cabin, accommodating eight persons. Roomy cockpit. Two mainsails, one new 1910. Engine could be installed if desired. Price low. For further particulars apply to Frank Bowne Jones, Yacht Agent, 29 Broadway, N. Y. City. * * *

No. 3205—For Sale—Semi-keel auxiliary yawl, 28x22x9 ft., draught 3½ ft. Able under sail and power; Fulton 5-h.p. engine, selected as the best of its kind by Knickerbocker Y. C. Committee for their "Sea Skunks." Sails in excellent condition. Fine boat for day sailing or cruising. Cabin sleeps four and is equipped with water tanks and w. c. Price \$600. Inspectable near New York. For further information inquire of Frank Bowne Jones, or W. R. Eimer, 205 Third Avenue, New York City. * * *

No. 7146—For Sale—Modern cruiser, 85x80x14x4.6 ft. Built 1906. Oak frames, cedar planking, copper fastened. 6-cylinder, 100-h.p. 20th Century motor new 1911, speed 12 miles. 660-gal. gasoline tank, three double staterooms, saloon, bathroom, two w. c's. 6.2 ft. headroom. Complete electric light plant. Carries 600 gal. fresh water. Two boats, one a launch. Completely equipped in all departments. Boat in the best of condition. Full particulars from Tams, Lemoine & Crane, 52 Pine Street, New York City. * * *

No. 2646—For Sale—Racing and cruising sloop, designed and built by Herreshoff. One of the fastest and best boats of her class. Dimensions 58 ft. on deck, 37 ft. w. l., 11½ ft. beam, 9 ft. draught. Double-planked mahogany construction. Cabin has comfortable accommodations for four. Two full suits of sails, by Ratsey and Herreshoff, one suit as good as new. Offered at an attractive price. For further particulars, address Frank Bowne Jones, Yacht Agent, 29 Broadway, New York City.



2646

THE BOSTON SHOW

THE show at Boston this year was unusually complete and interesting. It was compact and neat, a thorough business display of the best in the land. There were very few trashy or nonsensical exhibits, such as often mar these exhibitions, and are an annoyance to the legitimate exhibitors. The Boston Show is always well run, and is run in the interest of the public and the exhibitors, which cannot always be said of these exhibitions, and Mr. Campbell is particularly to be congratulated on the intelligent manner in which the event this year was handled and brought off.

The main feature of the exhibit was the boats, as it always must be; the completed product which appeals to the visitor, whether he be a boat-user or not. I was much struck by the great improvement not only in the design, but in the workmanship displayed in these boats. The flimsy factory thing was no longer to be seen; all the boats shown were boatbuilder-built. The builders also have learned another lesson and go to the designer for a design, and have ceased trying to turn out their rule o' thumb abortions.

The engines also show large improvement, mostly in the line of simplification of parts, in neatness of model, and in greater attention to the details of finish. The roughly built, junk machine, that hid a hundred faults and blemishes under thick coats of gaudy paint, is no longer to be seen.

The management did a bold and wise thing in obtaining the yawl *Sea Bird* as the principal drawing feature of the show. The little boat has been tremendously advertised since she made the voyage to Rome, and thousands were anxious to see her. The aisles were constantly blocked in her vicinity, and thousands of men and women boarded the yawl and looked over her living quarters. On Wednesday, *Sea Bird* day, although it was snowing heavily, was the largest attendance of the week, and over two thousand attended Mr. Day's illustrated lectures, in the large hall.

It proves that what is needed to draw attendance to these shows is something outside of the strictly commercial—something spectacular. To make a success these exhibitions must be less of the showroom and more of the theatre.

The Eagle Company, of Newark, N. J., exhibited nineteen different models of engines. Their new lightweight, high-speed line, which they brought out this year, attracted considerable attention. The machine is apparently up to the high standard the Eagle Company have maintained for their product in the past, and will undoubtedly be heard from this year.

The American Steam Gauge and Valve Company, of Boston, Mass., demonstrated Sanborn's speed indicator, which attracted unusual attention. They are made up in three sizes for boats from 7 to 15 miles, 8 to 25 miles, and for high-speed boats from 10 to 40 miles. The gauges sell for \$25 and \$30, and are of a very substantial and neat construction.

The Evans Stamping and Plating Company, of Taunton, Mass., had a complete line of the well-known Para-

gon gears. The line was practically the same as last year, and is now used as a standard equipment by fifty-four engine manufacturers in this country.

The Noyes Machine Company, of South Portland, Me., exhibited a very interesting folding propeller. On the "go-ahead" motion of the engine the blades automatically open and drive the boat ahead. In the reverse motion the blades are reversed, and the face of the blade is used in backing up. They had numerous testimonials from the fishermen on the Atlantic coast, who have been using these wheels successfully for a number of years past. The wheels sell for an exceptionally low price, and are of substantial construction and simple in operation. The blades automatically fold behind the deadwood when not in operation.

The Evinrude Motor Company, of Milwaukee, Wis., had three machines with their rowboat attachment, and attracted considerable attention.

Clafin & Flagg, of Boston, exhibited a revolving horn enclosed in a cage about the size of an ordinary lobster-pot, and while the instrument was evidently useful, it made the life of immediate exhibitors miserable by its constant operation.

The Pratt Engine and Boat Company, of Boston, had a complete line of Cleveland auto boats, Ferro engines, the famous Kahlenburg, and a complete line of the well-known Scripps engine. In addition they had on exhibition Captain Larson's boat, equipped with a two-cylinder Scripps engine, that conquered Niagara last year.

George Lawley & Son Corporation, of Neponset, Mass., exhibited a very interesting hunting cabin type of cruiser, with a very unique engine compartment. The engine compartment was entirely separated from the rest of the ship, and contained a four-stroke, single-cylin-



Mr. Chester I. Campbell, Manager of the Boston Show

der, 7-h.p. Craig. The speed boat Magnet, with a four-cylinder Sterling, was a very speedy looking craft, but at the same time looked as though it would be a "wet one" when driven at high speed. They also exhibited stock tenders of 10 and 12 feet, and 11-foot stock and yacht tenders finished in the regular Lawley style.

The S. M. Jones Company, of Toledo, Ohio, had an unusually fine exhibit of rugs and furniture, due to a train wreck which entirely upset their plans; but on Thursday were able to exhibit the 20-h.p. four-cylinder engine which they had shipped from New York.

The Loew Manufacturing Company, of Cleveland, Ohio, had a complete line of engines of various sizes, including their two-cylinder, three-cylinder, 2-4 cylinders, and the new special Loew engine, 20 to 30-h.p.

Palmer Brothers, of Cos Cob, Conn., had thirteen engines on exhibition, covering various types made by them.

The Fairbanks Company, of Boston, had ten marine engines on exhibition, as well as their stationary type.

V. J. Emery, of Wollaston, Mass., had three engines; a 25, 45 and 60. The principal features of the Ideal engine, built by them, are the long bearings, force-feed oilers, and the new manifold of unique and compact construction. In this year's design all valves on the 25-h.p. and up are mechanically operated.

The Seager Engine Works, of Boston, Mass., had a complete line of Regal engines, showing the automobile type, medium-speed, and the heavy-duty working engines.

J. N. Schoonmaker, of 220 Congress Street, Boston, Mass., had a complete line of Lamb engines, as well as numerous illustrations of yachts, in and around Boston, in which Lamb engines are demonstrating their worth. Their quiet, easy action adapts them especially for yachtsmen's use.

A. S. Morss Company, of Boston, Mass., the well-known shipchandlers, as usual had one of the finest exhibitions at the show. Practically everything yachtsmen use for building or sailing was on exhibition, as well as a number of new specialties the firm is bringing out this year. They had a large line of Michigan wheels, of every description, and reverse gears, and some Geyer specialties that are being placed on the market for the first time this year.

The Rex engine, shown for the first time at the show this season, is a very compact two-stroke engine. There are no water pipes in sight, and the split flywheel enables you to move the flywheel without any trouble; the hand-hole plates are unusually large. A Universal stuffing-box, Thermex silencer, Hyde propeller and Connecticut coil is furnished with each machine, which, by the way, is a combination two and three-port engine, and sells at an exceptionally low price, when workmanship and material is considered. The guarantee given with this machine is about as strong as any one could make it, and with the output, as sold, the company is bound to be successful.

The Buffalo Gasolene Motor Company, of Buffalo, N. Y., had a very complete line of engines. Four heavy-duty sizes; three medium; and three high-speed machines. The 9-h.p., heavy-duty, with a 5-inch bore and 6½-inch stroke, attracted unusual attention, and appealed very strongly to the fishermen and commercial boat owners visiting the show.

The Vim Motor Company, of Sandusky, Ohio, had a complete line of engines, and their new system, which prevents backfiring, when running light on gasolene, was

a feature, and one of the strongest features a two-stroke engine could have. The engines attracted considerable attention, and their claims were well received by prospective buyers.

The Gray Motor Company, of Detroit, Mich., exhibited sixteen engines of marine stationary types. Their four-cylinder stationary farming engine, at the price they sold it, was one of the wonders of the show.

The Gas Engine & Power Company and Chas. L. Seabury & Co., of Morris Heights, N. Y., had on exhibition a 30-foot Speedway runabout, which was considered the "Queen" of the show. The boat contained a four-cylinder Speedway, 4½ by 5, on which a speed of 18 to 22 miles is guaranteed.

Toppa Boat Manufacturing Company, of Boston, had an unusually large exhibition, consisting of a 27 by 7-foot hunting cabin type cruiser, with an 8 to 10-h.p. engine, with a toilet, cushions, top and tender all complete, and finished in the best possible manner, costing \$1,250. They also had an 18 by 5-foot 4-inch boat of oak, with a 3½-h.p. engine, furnished complete with cushions, etc., for \$400 and an 18-foot dory with a 3½-h.p. engine, selling complete for \$315. In the basement they had a 26 by 7-foot raised deck cabin cruiser, completely equipped for cruising, with an 8 to 10-h.p. engine installed, that sold for \$925. They also had a 22 by 6-foot dory, with an 8 to 10-h.p. engine, which sold for \$465, and a 19 by 5-foot dory, with a 3½-h.p. engine, which sold complete for \$275. In addition to the boats, they were showing a 3-h.p. single-cylinder; 5-h.p. single-cylinder, and an 18 to 20-h.p. high-speed aluminum base engine.

The Waltham Watch Company, of Waltham, Mass., exhibited for the first time at the Boston Show this year, and had a very complete line of chronometers, which attracted considerable attention.

The Essex Engine Company had a complete line of their heavy-duty engines, as well as their high-speed engines.

Chas. H. Gillespie & Sons, manufacturers of the Monarch Spar Varnish, had a very complete exhibition of their output in charge of their Boston representative, Mr. L. C. McCombs, who never failed to let any one pass the booth without telling their 88-year-old story of how they made varnish, "The good old-fashioned kind," or about their Bull-Dog Remover, or their white enamel that would make a white mark on the whitest white enamel that any one could produce.

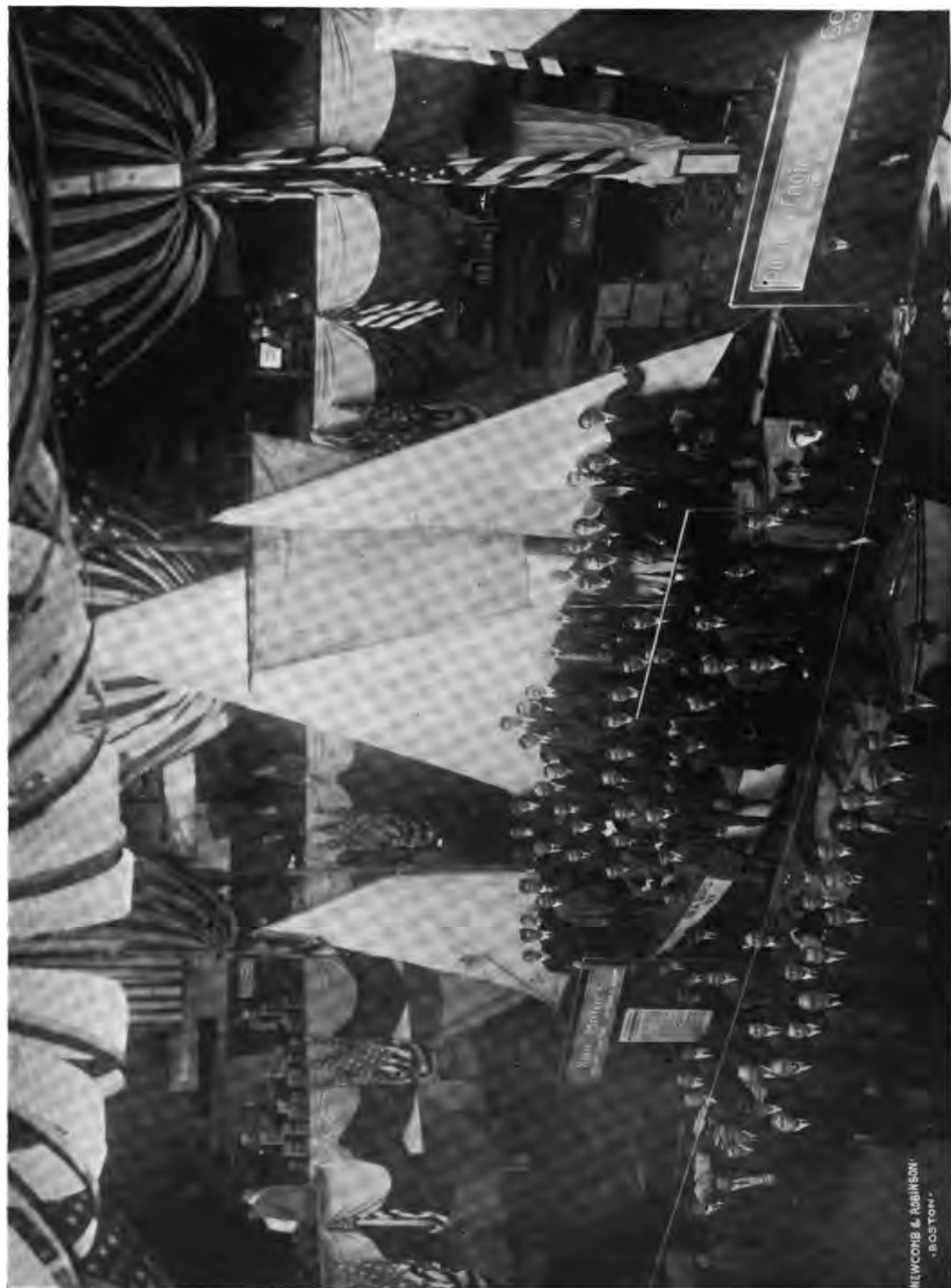
John C. Hopkins & Co., of 119 Chambers Street, New York City, exhibited a very complete line of the regulation Government lights, horns and boat equipment, as well as batteries and other useful sundries. They also displayed pillows and cushions on which they worked special monograms, flags and other devices.

A. S. Campbell & Co., of Boston, had a complete line of lighting outfits, and their celebrated hot-water metal bottles.

The Standard Motor Construction Company, of Jersey City, N. J., exhibited a six-cylinder Standard engine, as well as a line of direct-connected generators.

Murray & Tregurtha Company, of South Boston, Mass., exhibited a six-cylinder engine, and a single-cylinder engine for a lighting set.

Northwestern Steel & Iron Works, Eau Claire, Wis., had a very complete line of engines, in charge of their Boston agent, the Page Belting Company, of 31 Pearl Street. For the convenience of their customers in Boston, the Page Belting Company are carrying a complete



Sea Bird at the Boston Show

NEWCOMB & ROBINSON
BOSTON

line of duplicate parts, and as all parts of this machine are of standard sizes, and carried in stock at Boston, it will be an unusual convenience for purchasers of this machine.

The Mechanics Foundry and Machine Company, of Fall River, Mass., exhibited for the first time, their line of engines, which are of a very substantial make, and apparently built for rugged work.

The Noank Boat Company, of Noank, Conn., had on exhibition a 22-foot hull that had been in use for over four years, in which was installed an old reliable 5-h.p. single-cylinder Lathrop engine. The boat and engine, after four seasons of hard wear and tear, looked practically as good as new, and their claim of building a heavy-duty boat for hard work was conclusively proven.

Cape Cod Power Dory Company, of Wareham, Mass., exhibited a 20-foot special, with a Palmer engine, which sold complete for \$275, and a 16-foot sportsmen and fishermen boat, equipped with a Roper propeller, which sold complete for \$250, and a 10-foot cedar skiff, which sold for \$20.

The Aaron Bilge Pump Company, of Providence, R. I., had an unusually interesting exhibition, in charge of their manager, Mr. J. J. Buckley, who did a few stunts that were not only convincing, but lasting. The Aaron bilge pump is operated by the exhaust water from the engine, and is practically an ejector syphon. It drains the bilge until the last drop is reached, and then empties it of all gases that may have accumulated. In order to prove this demonstration, a small portion of gasoline was thrown in a pail of water, which was pumped dry. As the water was about exhausted a lighted match was placed at the discharging end of the pump. This drew all the gases that had accumulated in the pail, and a flame from 1 to 3 feet would shoot out from the end of the hose. The demonstration, however, has got to be seen to be appreciated, and while the Government has accomplished great work in insisting on life-preservers, fire extinguishers, etc., the greatest prevention of accidents is undoubtedly the Aaron bilge pump, as it will unquestionably pump the bilge free of all gases, etc. The United States Navy Department, and the various fire departments of cities and towns in the United States have adopted the Aaron pump, as it is, without question, one of the greatest safety apparatus that has ever been gotten up for boat use, cellars, and, in fact, any place that gas is apt to accumulate.

Chas. J. Jager Company, of Boston, Mass., had an unusually complete line of engines both of the high-speed heavy-duty type, as well as their direct-connected lighting plants.

The Caille Perfection Motor Company, of Detroit, Mich., had a complete line of their engines, also attracted considerable attention with their new Witherbee ignition device that does away with batteries, coils, timers, etc., and which, in future, will be a regular Caille equipment.

Goblet-Dolan Company, of 30 Old Slip, New York City, had a very complete line of their yacht pump closets, folding basins, sinks, etc., and a very substantial bilge pump which attracted unusual attention, owing to its capacity and ease of operation.

The American Marine Equipment Company, of Haverhill Street, Boston, Mass., had an unusually large display of Watkins engines, Clifton heavy-duty engines, Frisbie medium and heavy-duty machines, Fox aeroplane engines and heavy-duty marine type, as well as a Breeze

hydroplane. The exhibition of this concern was probably the most complete in the engine line at Boston, and they are able to equip anything in the way of a boat from a canoe to a 100-foot cruiser, a hydroplane or a normal type speed boat.

The Wolverine Motor Works, of Bridgeport, Conn., exhibited a single-cylinder, heavy-duty engine, and two three-cylinder engines of large horsepower. The machine built by this firm is of a decidedly heavy-duty type, and they have been very successfully used in connection with gas producers in all parts of the world.

The Fairbanks, Morse & Co., of Chicago, Ill., had a very complete and interesting exhibition of all engines made by them. They had a split cylinder showing one of their engines in operation, which was unusually instructive to prospective purchasers.

Kershaw & Williams Company, of Boston, Mass., exhibited a completely finished runabout, in which was installed a three-cylinder Erd engine. The runabout was sold with a guarantee of speed up to 25 miles an hour, according to the power installed. For heavy-duty work they were carrying a very complete line of Fulton engines, manufactured by the Fulton Engine Company, of Erie, Pa. The unusual feature of the Fulton engine is the fact that it is operated without battery or coil. They were one of the first to adopt, and now use entirely, the Wico igniter, which does away with all batteries, coils, vibrators, timers and all necessary wiring.

C. F. Roper & Co., of Hopedale, Mass., had a very complete line of Roper wheels in all sizes, and were showing their low-priced speed indicator, for small boats, that has attracted considerable attention during the past season.

Rice Brothers, of East Boothbay, Me., exhibited a 20-foot hull with an 8-h.p. engine with a guaranteed speed of 12 miles an hour. They also had a 20-foot hull with a 4-h.p. engine, all complete, for \$275, with a guaranteed speed of 8 miles an hour. For complete boats, of this type, they were, without question, the best money value at the show.

Snow & Petrelli Manufacturing Company, of New Haven, Conn., had a complete line of gears, selling from \$15 to \$135. The gears manufactured by this concern are for high-speed boats, also for commercial use. The most interesting gear shown by the firm was built for a 60-h.p. high-speed engine, and weighed complete 92 lb.

The Electric Goods Manufacturing Company, of Canton, Mass., demonstrated the Perfex system of ignition in a most convincing manner, and, in fact, many engine concerns have adopted it as standard equipment. Almost every engine at the show was equipped with Perfex ignition.

Camden Anchor-Rockland Machine Company, of Camden, Me., exhibited a very complete line of machines, and attracted considerable attention, owing to the fact that it was a 3-h.p. Knox engine that was installed in the Sea Bird, which made a famous ocean trip.

The Puritan Engine Company had a complete line of engines of their own make, as well as the Pierce-Budd machines that are so well known in racing circles.

The Monitor Boat and Engine Company, of Newark, N. J., had a very complete exhibition of half models and knockdown frames.

The Automatic Machine Company, of Bridgeport, Conn., exhibited in the Lunt-Moss Company's booth, their Boston agents, a complete line of Automatic engines for heavy-duty work.

Other exhibits and exhibitors were:

Columbia Batteries.—Manufactured by the National Carbon Company. Multiple battery case for ignition, specially designed for primary or auxiliary sparking. Gives advance indication of its exhaustion.

C. F. Splitdorf: Splitdorflite.—Display of all magnetos, high and low-tension and make-and-break. Display of spark coils and board attracting the most attention. Board is a lighting generator and ignition combined, and lighting outfit is specially adapted for cruisers.

Thermex Silencer.—Can be installed on any gasolene engine provided it is given circulating water. That's the only reason why it cannot be installed on an automobile. The circulating gas from cylinders enters through an elbow pipe striking a deflector which lodges the gas to the expansion chamber in a circular sheet. Circulating water from the cylinders is all piped to the top of the Thermex, where it is delivered over the edge of an umbrella where it mixes with the water and gasolene which reduces the temperature of the gas from about 1,500° when it enters to about 100° when it leaves. It is made of cast iron the same thickness as the walls of the water-jacket and will last as long as the engine. There can be no clogging as there are no projecting pipes or baffle plates. The water cannot flow back into the cylinders as the nozzle outlet is at the highest point and all water will run out at the open drain. Manufactured by the Thermex Silencer Works.

Thompson Automatic Feathering Propeller.—Manufactured by the Noyes Machine Company, of South Portland, Me. Tank was shown with the propeller on a shaft operated by a handle. Wheel goes on a solid shaft like any solid wheel, that is, there is no hollow shafting, no gears, no levers, bearings or any mechanism of that small nature that will get out of order and the two-blade wheel has but seven parts, this being one of the great points in it, because most all wheels of that kind—reversing wheels and the like—have a great many parts. In operating the wheel you change the direction of your shaft, reversing the engine or using the reverse gear. That brings up the point that it is not a reversing wheel. You have the same working force backing that you have going ahead because the blades reverse in the hub automatically. Made from 10 inches to 10 feet, two and three blades, and are especially adapted for auxiliary purposes, power tender or power canoe, to eliminate the drag. Guaranteed not to corrode.

Evinrude Motor Company.—Manufacturing detachable rowboat and canoe engines and showing a duck boat equipped with Evinrude detachable engine. Adjustable for different angles to meet requirements for any boat. Propeller adjusted for drop of 4½ inches. Engine works both ways. Speed controlled with timer and steering done by means of propeller, no rudder being required.

Ferro Machine and Foundry Company, of Cleveland, Ohio.—Showing complete line of their engines from 3-h.p. single-cylinder up to 25-h.p. three-cylinder.

Scripps Motor Company.—Were represented by the Pratt Engine and Boat Company and showing their models "B," "L" and "H."

Fairbanks Company.—Showing complete line of engines from 1½-h.p. to 7-h.p. in the single cylinders and from 7 to 15-h.p. double cylinders, all heavy and medium-duty type. The force-feed oilers on the single-cylinder engines is a new feature this year, also hollow crank-shafts for greasing babbitts and connecting-rod. On the double cylinders one-cylinder cutout and remov-

able check valves. They report that sales made at the show were very satisfactory and a number of prospective customers examined the exhibit with a great deal of interest.

Loew Manufacturing Company, of Cleveland, Ohio.—Manufacturers of four-stroke marine engines. Showed their complete line; changes being on mechanical oilers for lubrication, coupled with their regular splash lubrication, and using the Connecticut timer and Bosch magneto and changing the design of the base a little, making a square type of base and using a new special reversing clutch. All engines are equipped with reverse clutches. Including in this year's equipment a Hyde propeller and also muffler, propeller shaft and stuffing-box. On the larger engines they are water-jacketing the intake to the carbureter. They have changed the design of their intake manifolding, simplifying it over last year, and they also have an appliance for attaching to the exhaust manifold to operate their engines on kerosene where the purchaser desires it.

Carlyle Johnson Machine Company.—Marine reverse gears and friction clutches. New gear is known as No. 1 E, is self-contained, no oil can get outside, ground joints, stuffing-box on either end, perfectly noiseless and foolproof. All adjustment can be made from the outside without dissecting and on the forward the nest of gears is carried with the shaft, on the reverse it is reduced one-third. Gears are in use only on the reverse.

Buffalo Gasolene Motor Company.—Showing ten sizes of three types—regular type medium-speed engines, slow-speed heavy-duty engines and high-speed and automarine types. Practically no changes over last year with the exception of a few minor details. They showed a new size heavy-duty engine, two-cylinder 9-h.p. On account of the completeness of the exhibit it was much admired by the visitors at the show.

Eagle Engine Company, Newark, N. J.—Showing a complete line of nineteen engines. They make one price, furnish full complete equipment and don't list extras, only magnetos and reverse gears. Four new models in the light high-speed type and new split hub in flywheel.

Valentine & Co., of New York City.—(Mr. Walker in charge.)—Showed model submarine boats which were painted black from bow to stern and then varnished on alternate sections with Valspar and other makes of varnishes. Water turned the other varnishes white in forty-eight hours, while Valspar retained its original color.

Vim Motor Company, of Sandusky, Ohio.—Showing four-cylinder 55-h.p. and single-cylinder 5-h.p. and double-cylinder 10-h.p. and also double-cylinder 18-h.p. Special features are the non-backfiring device, double ignition system.

A. S. Morss Company, of Boston.—Complete line of boat fittings, including bells, propellers, steering gears and supplies.

The exhibition of The Atlantic Company consisted of a complete line of their famous "Gurnet" dories, 18½, 20½, 23½, 25½ and 30½ feet, together with a 35-foot fast afternoon cruiser planned for the accommodation of a large party—quick trip, dry boat, and such arrangements as one might wish for—galley and toilet—in using boat under these circumstances. The engine is to be a 60-h.p. six-cylinder, driving the boat better than 16 miles, and the attention given the boat by prospective purchasers indicates that it will be a very popular model.



Rex Engines



A. S. Morse Co



Regal Gasolene Engine Co.



Scripps Niagara Outfit



Geo. Lawley & Son Corp.



Electric Goods Mfg. Co.



Erd Engines



Valentine & Company



Atlantic Maritime Co.



C. F. Splitdorf



Evans Stamping & Plating Co



Cape Cod Power Dory Co.



Rice Brothers Co.



Aaron Automatic Bilge Pump



The Loew Manufacturing Co.



C. W. Estabrook



Sea Bird



Fox Engines



Vim Motor Co.



National Carbon Co.



Gray Motor Co.



George L. Chaisson



V. J. Emery



Sterling Engines



Wolverine Motor Works



Loew Victor Kerosene Attachment



Toppan Boat Mfg. Co.



Gas Engine & Power Co. and Chas. L. Seabury Co., Cons



Lamb Engine Co.



Pratt Engine & Boat Co.



The Buffalo Gasolene Motor Co.



Knox Engines



Eagle Engines



Standard Motor Construction Co.



Northwestern Engines



Frisbie Engines



Snow & Petrelli



Essex Engine Co.



Atlantic Company



Fairbanks, Morse & Co.

MONOVEX

MONOVEX is a 19-foot speed launch, which was designed, built and named by Capt. H. S. Johnston, of Clayton, New York. The boat was built for his own use, and the manner in which she was developed is quite interesting. The boat has proved fast for her power, and we publish herewith the lines and particulars of construction. The lines, however, show a boat with slightly more freeboard forward than on the original boat, otherwise they are practically the same. It will be noticed that the bottom is quite convex in section, the idea that this section would make for speed in a launch having occurred to Captain Johnston while towing ducking punts behind his fast launch Teal, one of the early St. Lawrence River flyers. These punts are double-ended affairs with a midship section similar to that of Monovex, and the Captain states that he discovered that the faster he towed these punts, the easier they seemed to ride—holding the nose well out, yet without traveling on the tail, as is the case with most small craft when towed at any sort of speed. So when the Captain was frozen in for the Winter of 1910-11, he had plenty of time to think, and in the Spring of 1911 brought out Monovex, which he claims, aside from her speed, to be a light, strong, seaworthy, and comfortable speed launch.

The boat is 19 feet over all with a breadth of 3 feet 6 inches, and over the Frontenac Y. C. measured mile, with one person on board, attained an average of 2 minutes and 24 seconds for the mile, which works out at 25 miles per hour, the person on board being the Captain, who tips the beam at 208 lb. With two persons on board, the Captain and Dr. Ross, Secretary of the Clayton Y. C., who admits 160 lb, the boat averaged the mile in 2 minutes 27 seconds, or 24.49 miles per hour.

The engine is a three-cylinder, two-stroke Pierce-Budd of 4-inch bore and 4-inch stroke, rated by the manufacturers at 18-25-h.p., and during the trials the circulating

water was sent through the muffler and out of exhaust, the muffler being a homemade affair of galvanized iron, 6 feet long and 3 inches in diameter.

Underway the boat travels very smoothly; in fact, so smoothly that the writer could hardly believe that she was making the speed claimed. She can be run helm free when at full speed for fully 100 yards before she begins to come around with the wheel, and the Captain states that he steers her ordinarily without any difficulty by shifting his weight from side to side.

The boat originally had the engine 2 feet 3 inches further ahead, and apparently was a failure; but moving it aft made a wonderful change in her speed and handling.

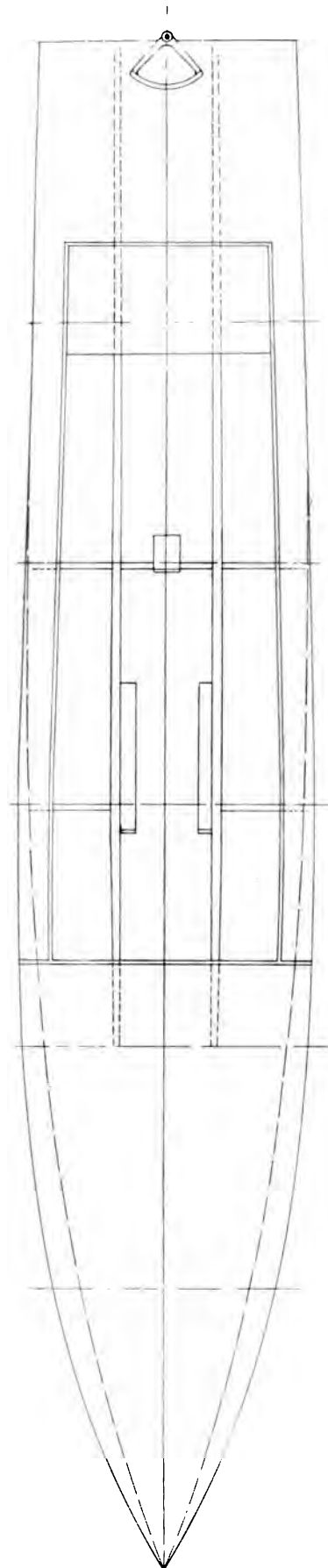
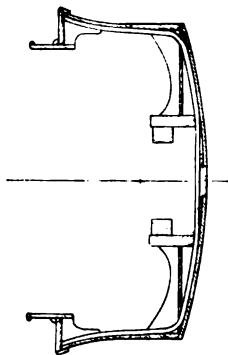
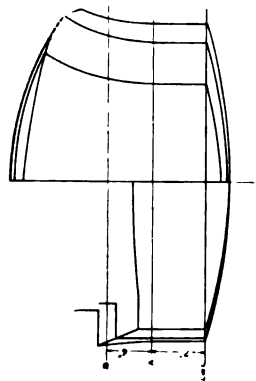
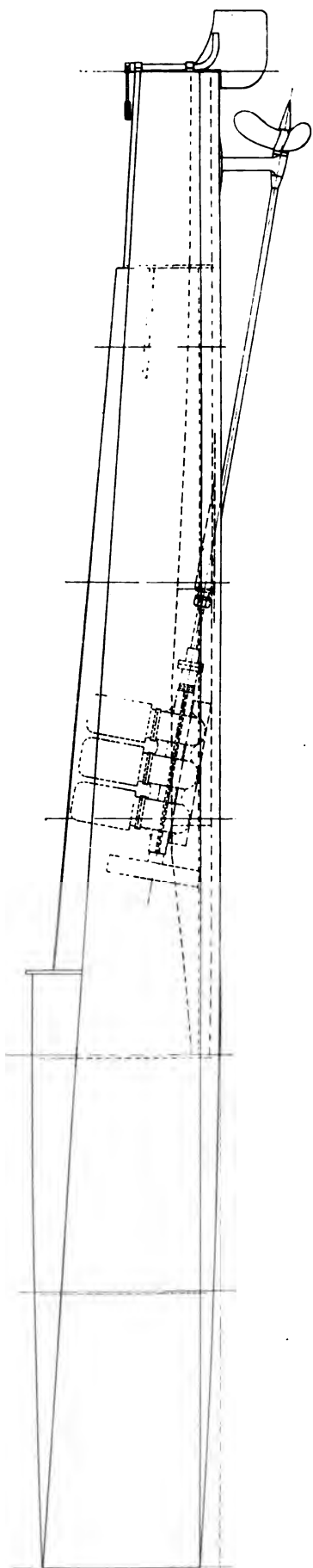
Several boats have been built from the lines, and it is interesting to note that in one case where the sections were flattened aft, the craft did not come up to the speed of the original boat.

She is built of cork pine, the topsides being of 7/16-inch material, the bottom of 1/2-inch, and the ribs of oak 5/8 by 3/4-inch, spaced at 5 inches on centers. The decks are of 1/4-inch stuff canvas covered, with the seams battened with 1 1/4 by 3/8-inch strips. The keel is of oak 6 inches by 1 inch, finished flush outside, and the plank between topsides and bottom is tapered, or rather planed down so that the bottom edge is 3/4 inch thick and the top 7/16 inch, to come flush with the topside planks. This lower side plank is 7 inches in depth for the full length of the hull.

The engine turns a two-blade Columbian wheel of 16-inch diameter and 25-inch pitch at 1,450 r.p.m. The boat is equipped with a Joe special clutch which weighs complete 47 lb. The weight of the hull alone, the Captain states, is 280 lb; the weight of the engine 217 lb, and with wheel, strut, and 1 1/8-inch diameter shaft, under 300 lb complete.



Monovex, 19 Ft. O. A., Making 25 Miles per Hour, with a Three-Cylinder, 4x4, Two-Stroke Engine



Lines of Monovex, 19 Ft. O. A. Designed by Mr. H. S. Johnston Clayton, N. Y.

In describing the craft designer writes as follows: "The boat at rest is very steady and one can walk to her extreme bow and she will not careen at all. At rest she draws about 1½ inch all along water-line, but, of course, on account of her form draws more amidships or rather along the line of keel. The original boat is exactly the same as the lines published, except that I have given her more freeboard forward; otherwise she is practically the same, and I do not know of any changes that I could suggest for her improvement.

"She is perfectly balanced and can easily stand a six-cylinder engine, which, I believe, would give her a speed somewhere about 32 to 33 miles. I think the boat is stronger than the ordinary type, for with her side pieces and stringers, all on edge, a very strong construc-

tion is obtained. Pounding does not seem to hurt her, and my original boat has never yet leaked a drop. Her seams are all square, calked with wicking."

The rounded bottom section, while it probably does not revolutionize the science of naval architecture, certainly permits of an easy handling boat, and we would like to hear what Brother Hickman of Viper fame has to say about Monovex—here is a craft of practically the same general type equipped with a three-cylinder, 4 by 4 engine turning a 16-inch, two-blade Columbian wheel of 25-inch pitch at 1,450 r.p.m. as against the one-foot longer Viper equipped with a three-cylinder 4¼ by 4¼ engine turning a 17-inch two-blade Harthan wheel of 24-inch pitch at 1,050 r.p.m. The difference in *claimed* speed being nearly 4 miles per hour.



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 1 Hudson St., N. Y., U. S. A.



SHOAL-DRAUGHT BOAT

I WISH you a fair wind and a smooth sea and a golden cargo for 1912, and may THE RUDDER ever have a numerous crew.

I am a trapper in Winter and have just skinned eighty-five muskrats, three mink, six skunks—you know how they smell. Could save my feet many a step had I a power boat, which would have to be built to take only 6 inches of water, to travel on the Mississinaw River. Here I am undecided which to build—a rift-climbing tunnel boat, 18-footer, or a stern paddle-wheel Viper. Many of the tunnel boats (both high and low power) are a flat failure on swift, shoal streams, because the propeller is unable to catch sufficient foothold in the water to shove the boat at a good speed. I have been informed the rift climber does not have this fault. Wonder if there is a patent on this boat, like there is on Hickman's surface propeller Viper.

There's 200,000 miles of river and creek in the U. S. A. that is navigable for 18-foot power boats with draught of 6 inches. Thousands are waiting for a practical small shoal-draught power boat.

I would like to see something in THE RUDDER about power boats with draught of 6 inches or less. Tell us on pages of THE RUDDER what horsepower we should have to get 8 miles per hour on a stream that flows 4 to 6 miles per hour, with a stern paddle-wheel Viper, with a single automobile roller chain drive direct from the engine to wheel. What diameter and width wheel, size and number of paddle on wheel. What gear ratio between engine and wheel.

Engine 20-h.p. Beilfuss, made at Lansing, Mich., four-stroke, horizontal double-opposed, bore 5 inches, stroke 5 inches, weight 350 lb (including 96-lb flywheel), speed 200 to 1,600 r.p.m. How much gasoline will it take per hour?

I am thinking of buying this kind of an engine. I will not build until 1913.

Don't answer this by letter. I want to see these things thrashed out in THE RUDDER by any or all that have experience in this particular line.

ORION HAPNER.

[Mr. Hickman, attention!—Ed.]

TAKE-A-STEP

THIS is the hydroplane that won the cup presented by the Motor Boat Club of America to the Royal Motor Yacht Club of England. Take-a-Step was built by Thornycroft, and is another illustration of the utility of small power in this form of racing craft. She is fitted with a 20-h.p. 4 by 4½ engine, weighing 504 lb. Her official speed in the race was 24.5 knots, but over the measured mile her owner claims for her a speed of 26 knots. Take-a-Step is owned by one of my old readers and correspondents, the Right Hon. Earl of Hardwicke.



Take-a-Step



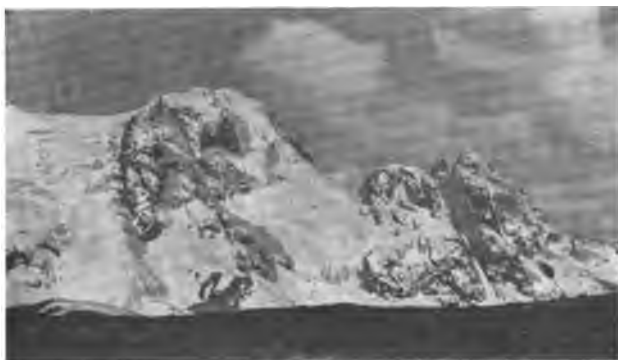
Mr. Andrew L. Forbes

OUR TIP-TOP READER

THIS is a photograph of a reader of THE RUDDER who claims to be in altitude the nearest to the stars. He is Mr. Andrew L. Forbes, and his present place of residence is La Fundicion, Peru, where he is engaged in mining and smelting. Mr. Forbes was one of the crew of Caliph in the Habana Race, and is one of the Oldman's boys. The photograph was taken on Mt. Meigs at a height of 17,757 feet.

AN INBOARD DEAD EYE

THERE is one thing I want now and that is a dead eye or deck light with heavy glass about 4 or 6 inches in diameter that can be opened from below deck and at same time having a good ventilator that can be screwed in from the deck. Perhaps you can inform me where I can get such an article and ventilator. There are lots of deck lights here, with ventilator attachments, but all



17,757 Feet in the Air

of them screw in from the deck. I want something that can be operated from below deck so that it cannot be stolen.

Chicago, Ill.

D. W. MACDONALD.

[There is wide call for something of this kind.—EDITOR.]

AMOUNT OF SAIL

MY boat is cat-rigged, 16 feet over all and 7 feet breadth of beam. I bought her last Fall and want to put a larger rig on her. How much sail would you advise my giving her?

G. SPICER.

* * *

[Unless we can see the plans of the boat and know the conditions under which you sail it is impossible to sensibly reply to such an inquiry. A 16-foot cat of the ordinary build and ballasting would require for Summer sailing 225 to 250 square feet of canvas, and for racing 300. It also depends upon the skill and temperament of the man who is going to sail her. Personally I do not believe in overloading a catboat with sail, and think they do much better under a moderate sail plan; nor do I believe in having a big rig, and in consequence carrying a load of ballast to offset it. Try 250 square feet and if not enough, lighten your boat until it is.—EDITOR.]



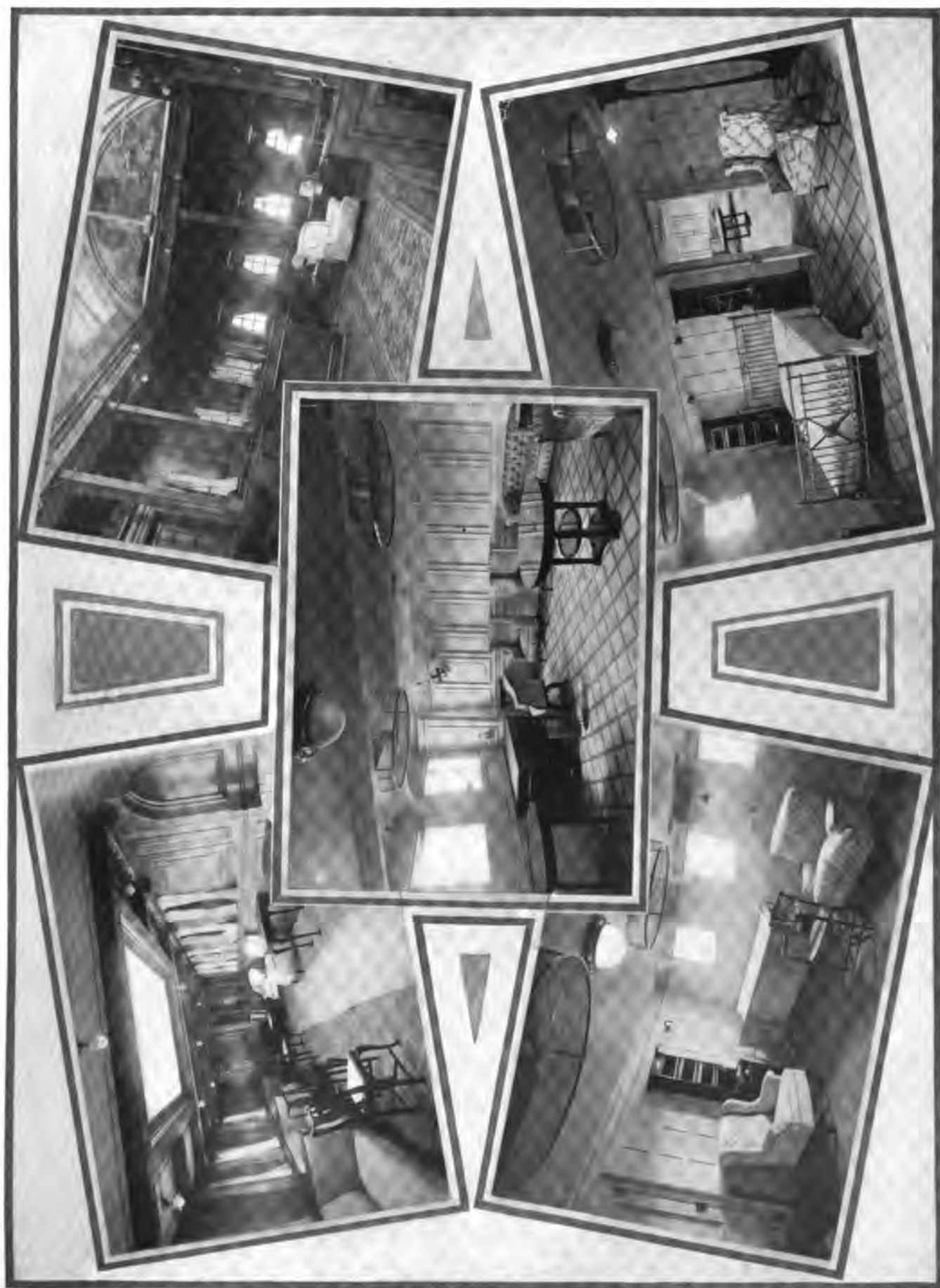
Straw Boats on Lake Titicaca

STRAW BOATS

THE highest navigable water in the world is Lake Titicaca, lying between Peru and Bolivia. It is so high that there are no trees, the only vegetation being grass, and in the lake shallows a species of coarse reed which grows luxuriantly, and from the hollow stalks of which the natives build their boats. Mr. Spencer D. Green, who has recently been visiting South America, sent us the photograph of a fleet of these boats from Puno, the Peruvian port on the lake. He says in his letter:

"I am enclosing one of my several pictures of my South American trip, which I thought might be of interest to you, as it is the Puno, Peru, fleet of yachts on Lake Titicaca, the highest navigable body of water in the world.

"In these frail craft, with what resembles a piece of straw matting for a sail, the yachtsmen of the Inca venture far out on a lake 12,500 feet above the water on which Sea Bird sailed."



Suite of H. R. H. King George on the Royal Steamer Medina in Which He Made the Trip to India and Return on the Occasion of the Dunbar. Note the Extreme Simplicity of the Furnishings

THE LIGHTHOUSE MISSION

PERHAPS some of you have seen that excellent and well-printed publication, *The Light Keeper*, published by the Lighthouse Mission at Belfast, Ireland. It is a magazine for circulation among the light-keepers of the world, and full of lighthouse talk and lighthouse pictures. The editor, Mr. Samuel H. Strain, whose picture we have the pleasure of showing you, is a good friend of THE RUDDER and never fails to speak a warm word for the magazine. Mr. Strain spends his life and gives his brains and money to the task of alleviating and making happier the lives of the world's light-keepers, a body of men who make great sacrifices for the good of mankind, and receive in return very little consideration and scant thanks from a thoughtless, selfish world. I would advise all hands sending for a copy of *The Light Keeper* and in this way helping along Mr. Strain's good work. The price of a copy is 40 cents and the address, 21 Linenhall Street, Belfast, Ireland.



Mr. Samuel H. Strain, Editor of *The Light Keeper*

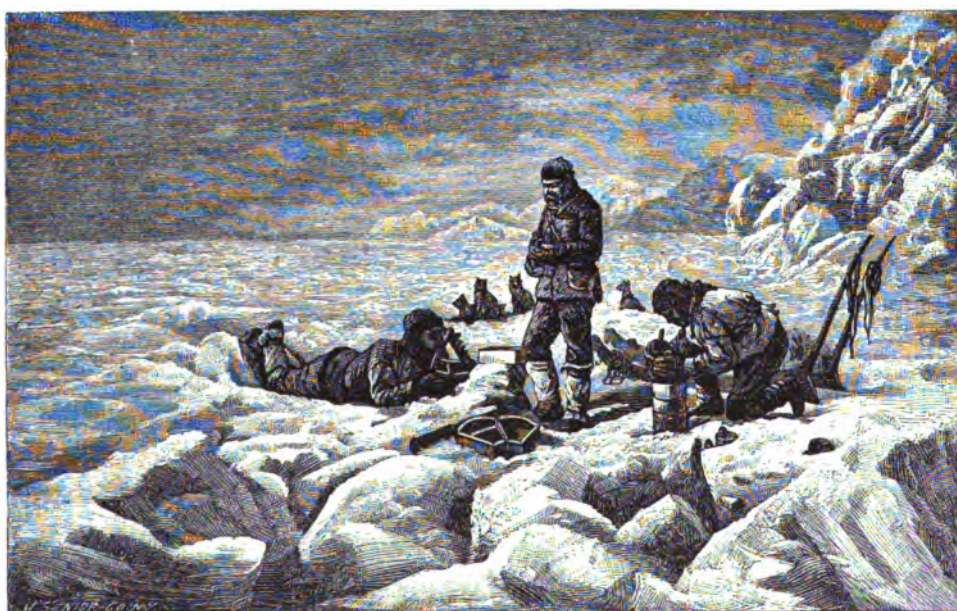
OBSERVATIONS IN THE ARCTIC

A YEAR or so ago an explorer professed to have located the North Pole by means of an observation of the sun taken with a sextant. The illustration taken from the book *Farthest North*, by Lieutenant Lockwood, shows that explorer taking an observation of the sun to ascertain the latitude, using an artificial horizon. This is in a position about 400 miles South of the Pole and with the sun at considerably more altitude than at the Pole. Lockwood admits that, owing to the difficulty of such observations, they are entirely unreliable, and can only be accepted as an approximate result.

The astronomer attached to the Kane Expedition, after taking one hundred observations for latitude from a fixed position, admitted that the mean of these observations might not be correct by from 100 to 200 feet. This shows that any claim of locating a position like the Pole by a sextant observation is absurd, especially when such observations are made only on one day and using but one heavenly body.

WOLVERINE IN THE TROPICS

POWER boats in tropical waters are mostly ones that are used for good, honest work, carrying passengers, hauling lighters, trading, pearl fishing, and logging. For these purposes a strong, roughly built hull is desired, with a rugged, reliable engine. A man in those regions is probably hundreds of miles from a repair shop, and is not an employer of highly skilled labor. This is one reason why Wolverine has such a strong hold on the boat user throughout Central America. It is an entirely reliable engine that can be run and repaired by ordinary skilled labor. The majority of the engineers on these boats are Jamaica negroes, and they make excellent workers. THE RUDDER has helped to sell Wolverines in all parts of the world, and has never had a single cause to regret its having done so. Everywhere this engine has given satisfaction.



Taking Observations in the Arctic



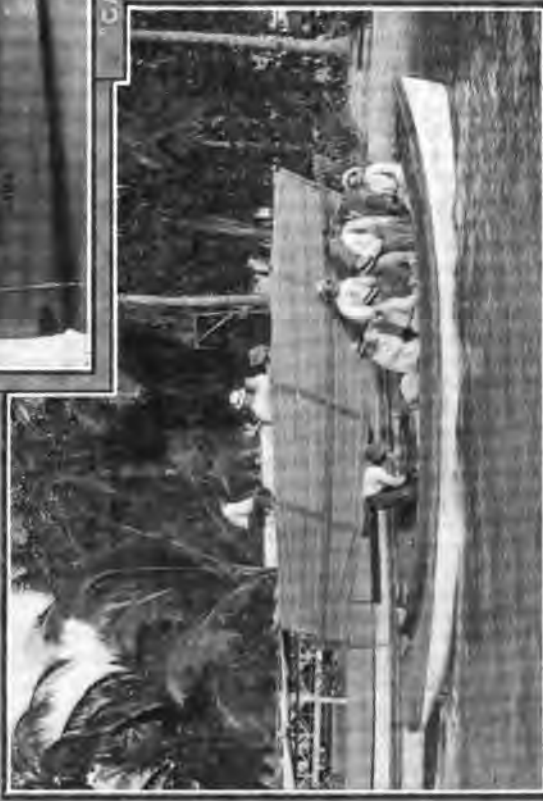
'CARLOTA' MAZATLAN



'ALICE E. JONES' BELIZE



'CAIRO' BELIZE



'HOBBO' MAZATLAN



'GILDA' PUERTO CORTEZ

Wolverine-Equipped Boats in the Tropics

PRODUCER-GAS HOUSEBOAT

AN interesting addition to the producer fleet is the 110-foot houseboat being built for Mr. W. C. Witherbee from the plans of Mr. H. D. Bacon, of Bath, Me. She is being built at the yard of Messrs. A. C. Brown & Sons, Tottenville, Staten Island, and is to be delivered in the early Spring.

One of the interesting and novel features about this boat is the fact that she is to be propelled by gas engines operating on producer gas, the Marine Producer Gas Power Company having secured the order for equipping the boat with engines and producers. The power plant consists of three engine units; the two propelling engines are of 75-h.p., each having three cylinders, the bore being 11 inches and the stroke 12 inches, and operating at 300 r.p.m. The auxiliary lighting unit is of 6½-inch bore by 7-inch stroke, rated at 12-h.p. at 450 r.p.m. All three engines are being built by the Wolverine Motor Works, of Bridgeport, Conn. The auxiliary plant will be direct-connected to a 6-k.w. Crocker-Wheeler generator, delivering current at 110 volts. The main engines will be air-starting and the auxiliary unit will be equipped with bilge pump, fresh and salt-water pumps and air compressor. The coal bunker capacity will be about nine tons, which, when used in the large producer, will give the boat a radius of action of between 950 and 1,000 miles.

The builders of the producer claim that with coal at \$4 per ton and gasoline at 10 cents per gallon, this distance would be covered with their producer for \$36, whereas gasoline would cost \$180. This figured on a basis of 950 miles would make the cost of fuel with producer gas .0379 cent per mile, and with gasoline .1895 cent per mile.

A complete system of refrigeration will be installed which will be power-driven, and storage batteries will be provided for lighting and other purposes, delivering current at 110 volts.

The 150-h.p. gas producer which furnishes gas for the propelling engines is 4 feet 6 inches diameter by 8 feet 8 inches high over all. The cleaner is 2 feet in diameter by 10 feet long. The 20-h.p. producer for the auxiliary unit will be 2 feet in diameter by 4 feet

10½ inches high over all. The cleaner for this auxiliary plant is 12 inches diameter by 5 feet 9½ inches long.

The craft will be used on Lake Champlain during the Summer and in South Atlantic waters during the Winter months. It is the intention to run the boat up the Maine coast and around into the St. Lawrence, thence to Lake Champlain.

The general arrangement of the boat will be seen on the accommodation plans. All the accommodations on the main deck with the exception of the starboard after room, which is the captain's, are the owner's quarters, as well as the forward cabin below decks. The crew will be entirely housed between the engine room and galley, and there will probably be two pipe berths in the engine room for the engineer and his assistant.

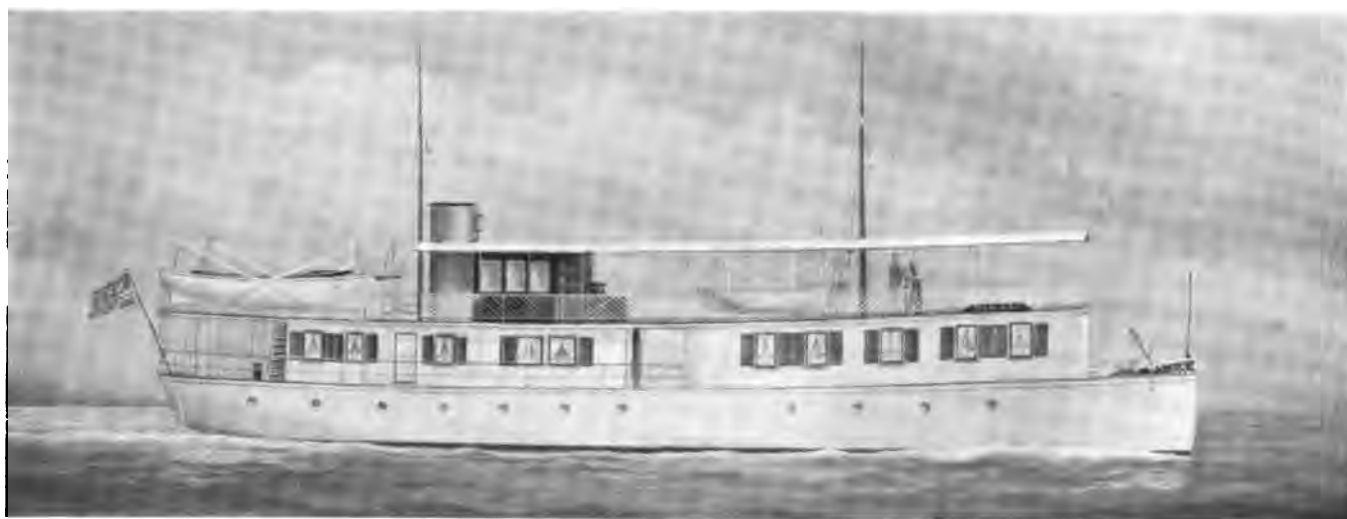
The finish of the owner's quarters will be in eggshell white; the entrance passage between the forward and after house will be left bright, as will probably the breakfast room on the upper deck. All fixtures above this deck, mast funnel and deckhouse, will be arranged so as to be easily taken down for going under bridges.

Brass bedsteads will be used in the owner's rooms. The furniture will be of African mahogany and all upholstery of silk velour. On the upper deck wicker furniture will be used throughout; the decks will be covered with Turkish rugs and numerous easy chairs, lounges, etc.; potted flowers, and palms in abundance will add to the decorative effect.

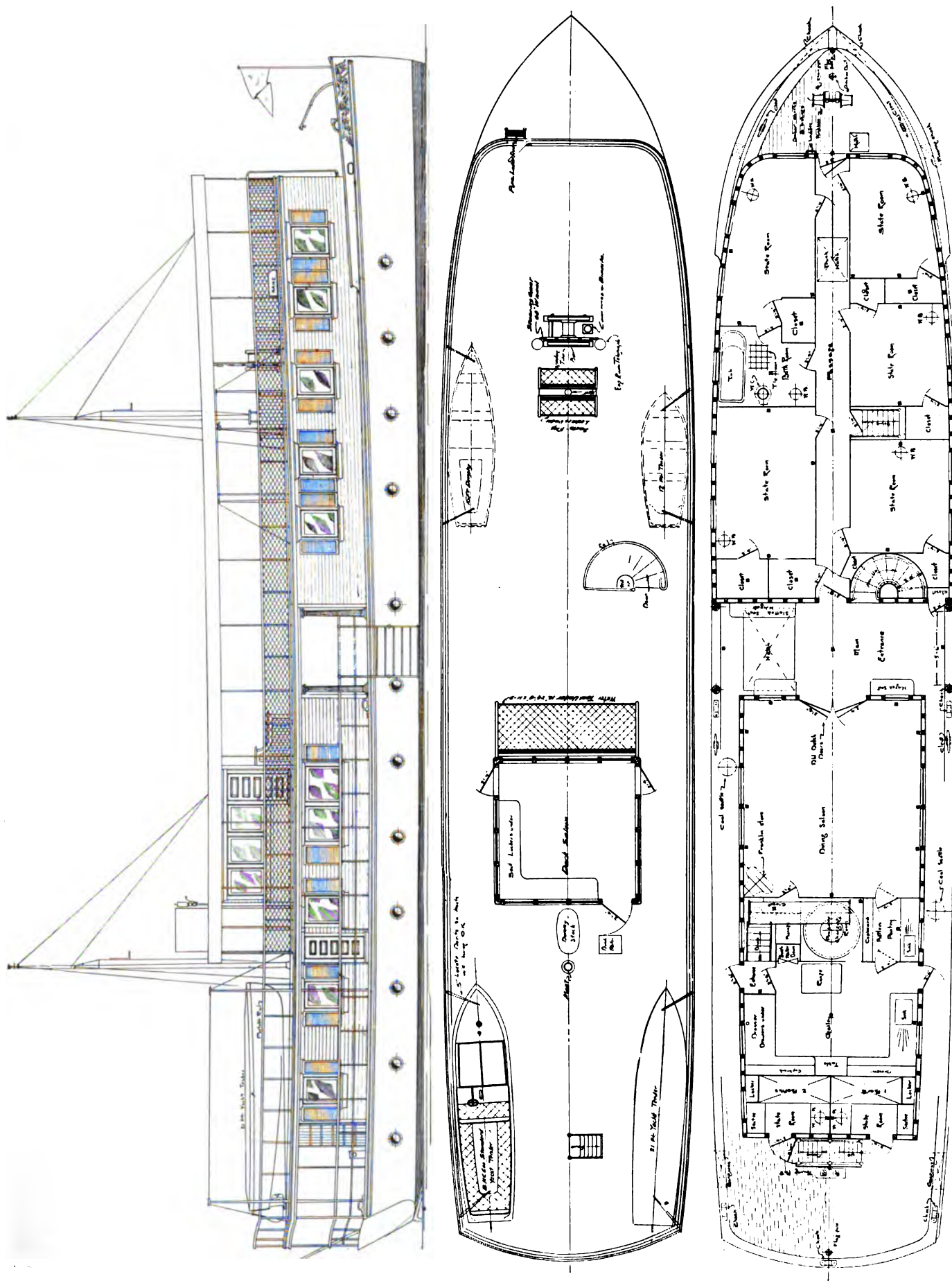
The craft will carry four tenders. There will be the owner's tender, 21 feet by 4 feet 6 inches breadth of beam, built along the same general lines as a ship's yawl, so as to give great seagoing qualities as well as good carrier. She will have installed a 12-h.p. double-cylinder Ferro engine with reverse gear. Another boat of the same dimensions but not so elaborately finished, fitted with a 5-h.p. Ferro engine and reverse gear, will be used for the crew, and there will be a 12-foot tender and a 16-foot rowboat.

General dimensions are:

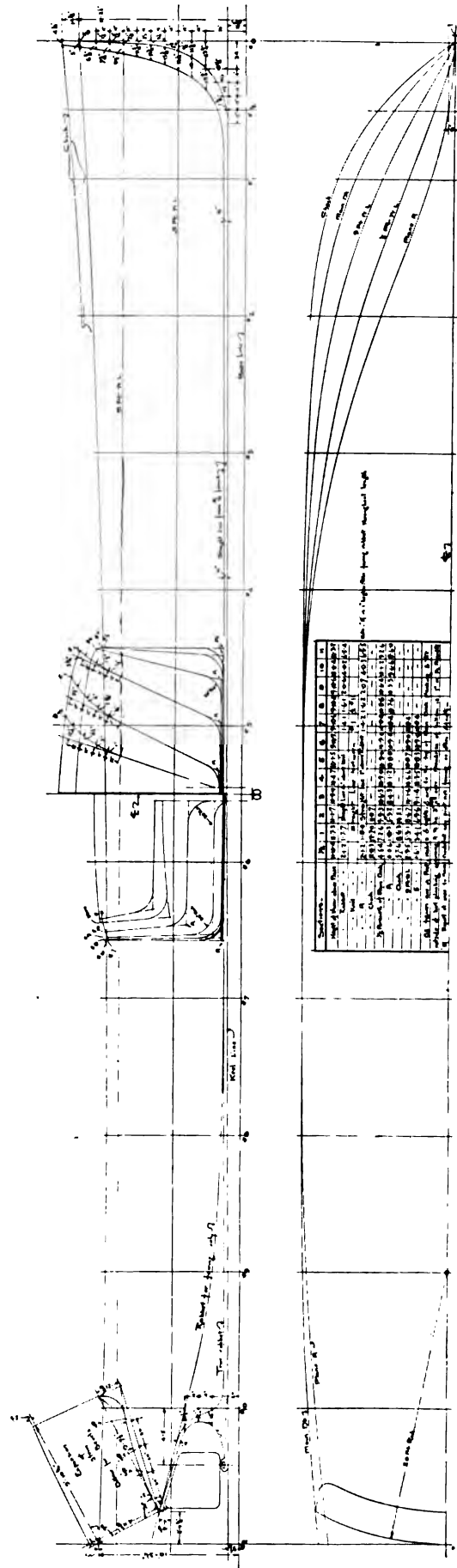
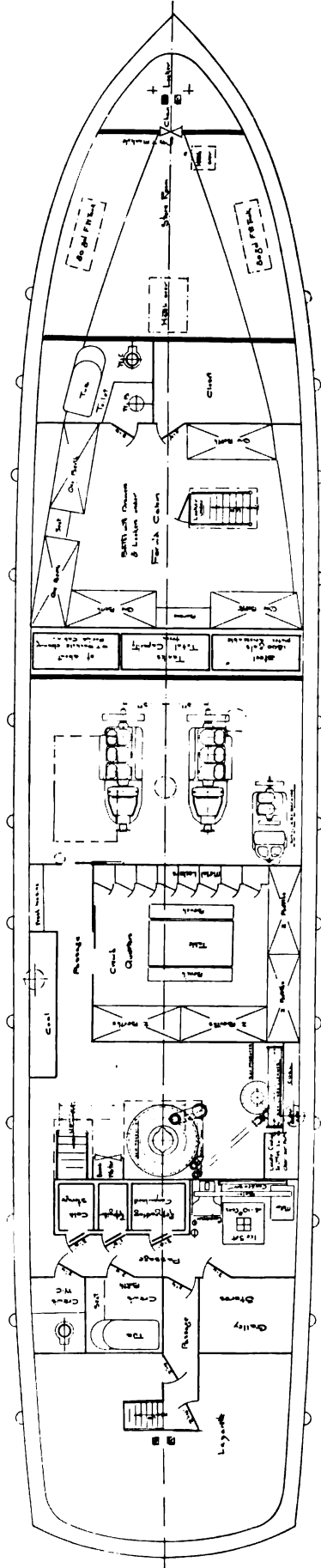
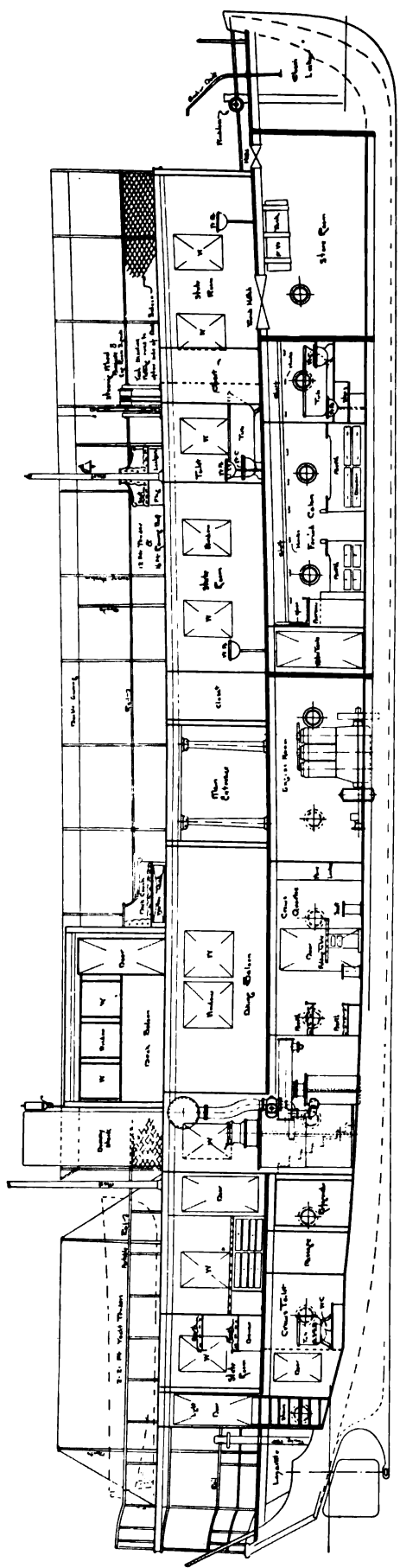
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|-------------------|-----|------|---|--------|
| Length o. a. | 111 | feet | 0 | inches |
| Breadth | 22 | " | 6 | " |
| Draught | 4 | " | 2 | " |



As the One-Hundred-and-Ten-Foot Producer-Gas Houseboat Will Appear When Finished



Outboard Profile, Boat Deck and Main Deck Accommodation Plans of Producer-Gas Houseboat



Inboard Profile, Lower Deck Accommodation Plans and Lines of Producer-Gas Houseboat

RAISED DECK CRUISER

THE sketch of the combination raised deck and bridge deck cruiser is from the board of Morris M. Whitaker and was designed for a Western yachtsman who desires his name withheld:

"The boat is designed for lake service and particular care has been given in the design to lake conditions, the form showing a wide flaring bow, to keep her dry in the short fresh water waves. The boat is intended mainly for day cruising and the design is worked out to give the best part of the boat, that having the most light and ventilation, from amidships aft, to the owner's use. The main deck is run on the line of the main sheer moulding and the cabinhouse, under which are the owner's quarters, is glass enclosed on each side and has an entrance at each end.

"At the forward end of the house on one side is the galley and on the opposite side the toilet, abaft of which is the main cabin with extension transoms on either side, separated from the after cabin by wardrobes and arch with curtains. The transoms in the after cabin are not made to extend, but behind the transoms in each cabin are alcoves and lockers for stowage of small articles. The engine is forward under the bridge deck, but with full head-room at the flywheel end, and under the forecastle head, so to speak, are the quarters of the crew, with transoms on each side and two pipe berths. These quarters are entered directly from the bridge deck through a sliding hatch.

"The boat is equipped with a false funnel and there is a seat on each side of the forward end of the cabin house, with foot rests forming lockers for charts, fenders, etc., in front. The boat is steered and controlled from the bridge and the gasolene and water tanks are

carried in the stern. A 10-foot boat will be carried and the hull will be of fairly heavy construction, oak framing and cedar planking, with deckhouse, rails and deck furnishings in mahogany. The interior will be finished in mahogany and white enamel. The whole deck space, from the forecastle head aft, will be covered by an awning with removable side curtains.

The engine will be a four-cylinder 30-h.p. Ralaco and the general dimensions of the craft are 44 feet over all and 9 feet 9 inches breadth of beam.

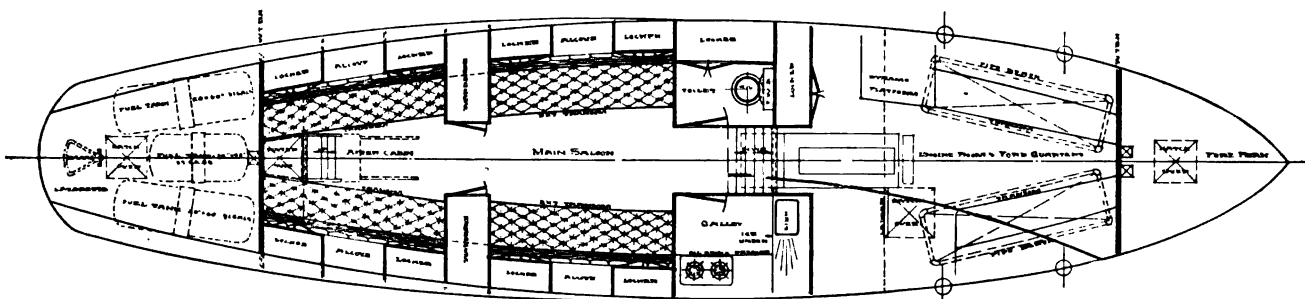
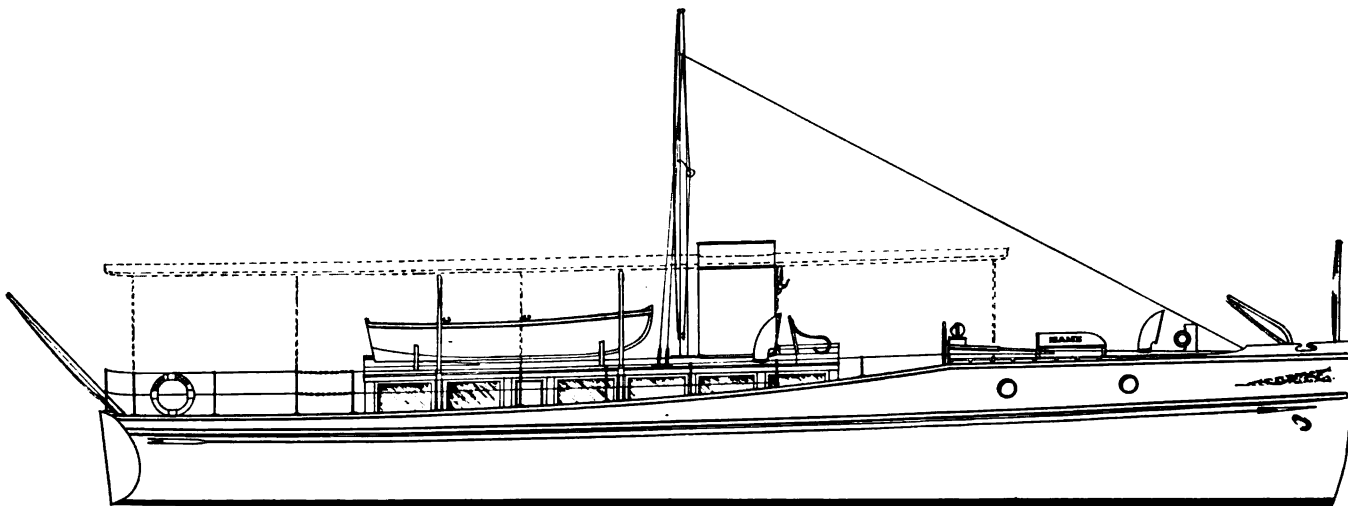
THIRTY-TWO-FOOT CRUISER

THE plans on following pages are of a small power cruiser designed by Mr. V. D. Bacon, of Barnstable, Mass., who writes of the craft as follows:

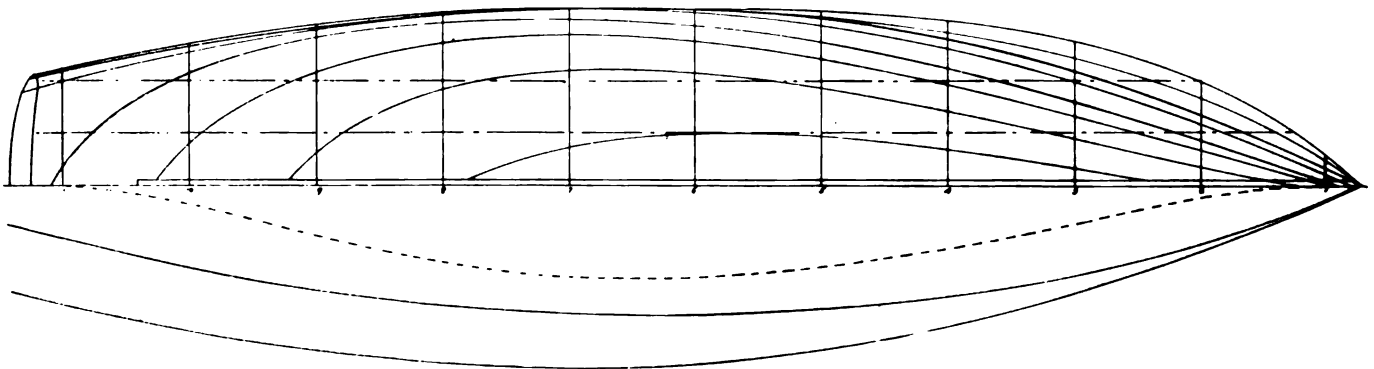
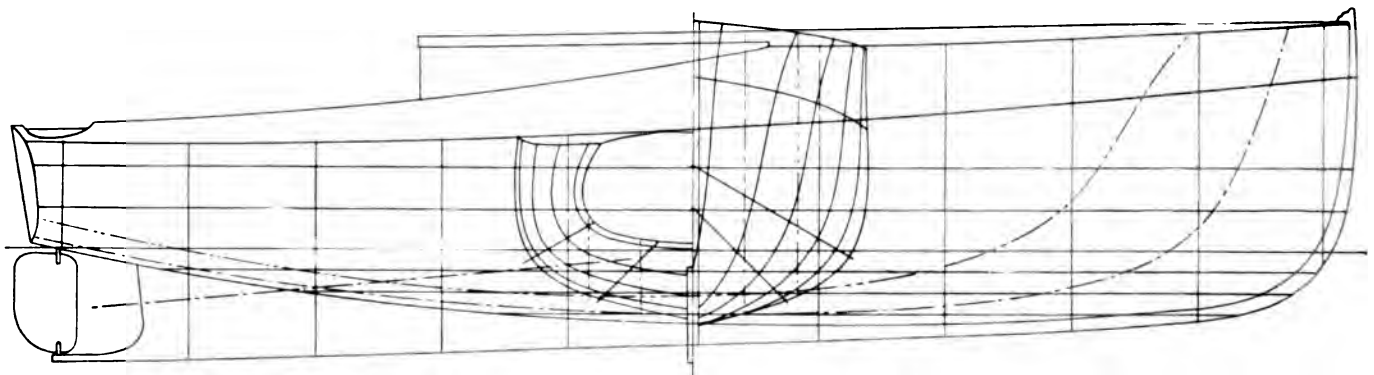
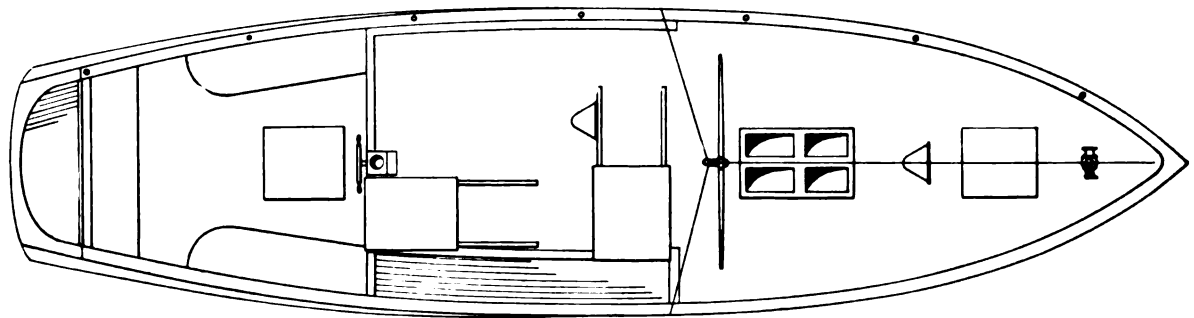
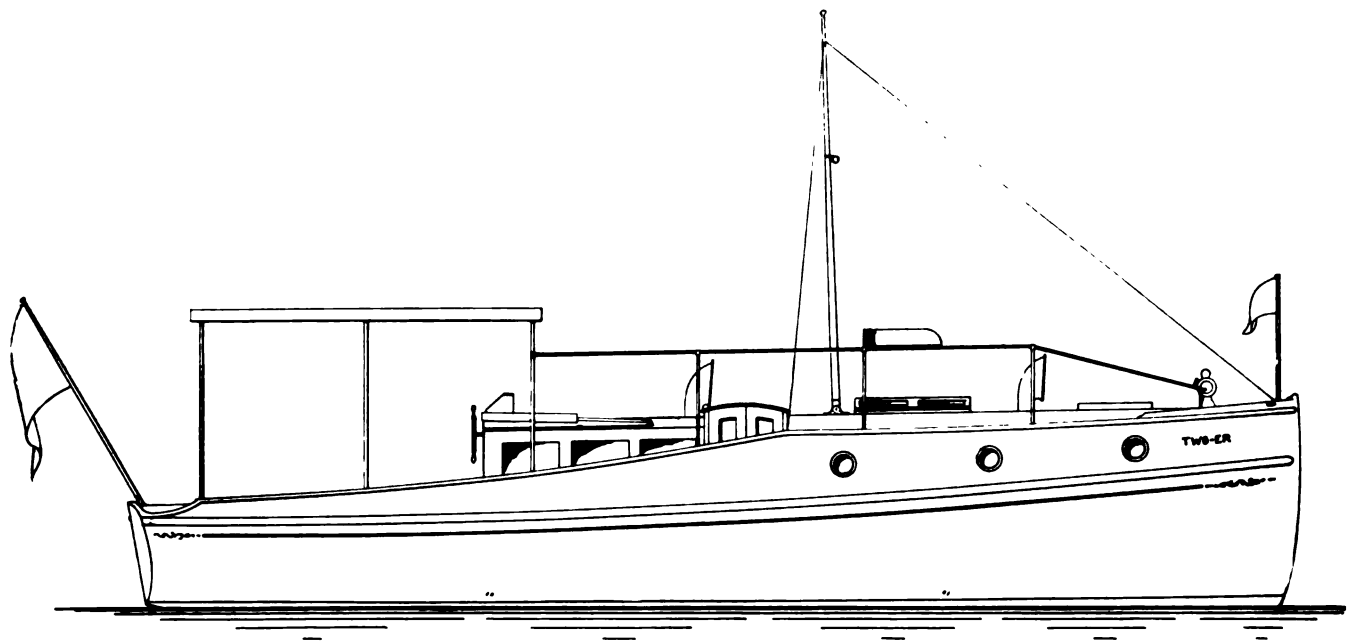
"In planning this boat extreme berthing capacity was not considered but the object to obtain was comfortable accommodations for two, with ample locker space for an extended cruise, and an extra pipe berth over transom on work bench in the engine room, should it become necessary to take on an extra hand or pilot at any time. The main cabin is separated from the engine room and galley by bulkhead and door, and has its own exit to the side deck, so that the working part of the boat may be entirely shut off, a feature which is often desirable, yet the engine room may be reached direct from the cockpit in bad weather. The galley may also be shut off from the engine room at any time by sliding to the engine on that side.

General dimensions are:

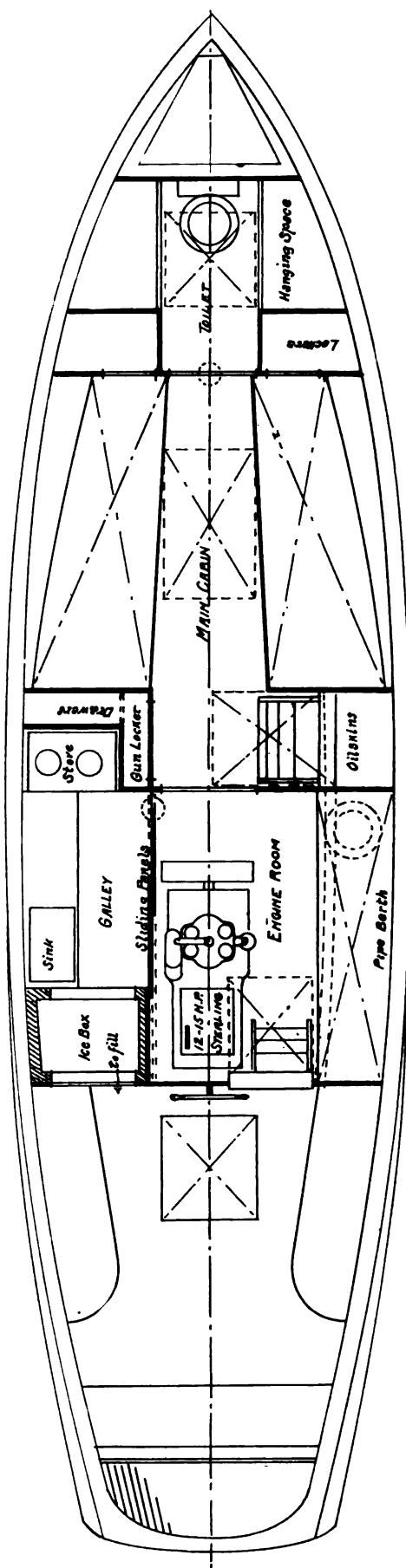
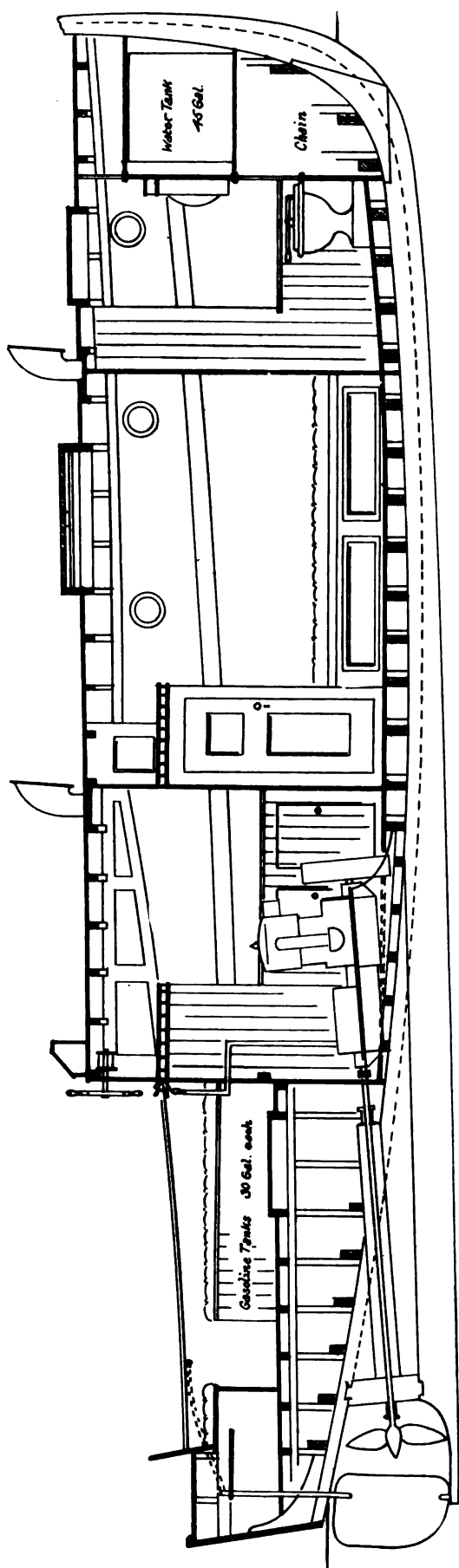
| | |
|------------------|------------------|
| Length o. a..... | 32 feet 0 inches |
| Breadth | 8 " 6 " |
| Draught | 2 " 8 " |



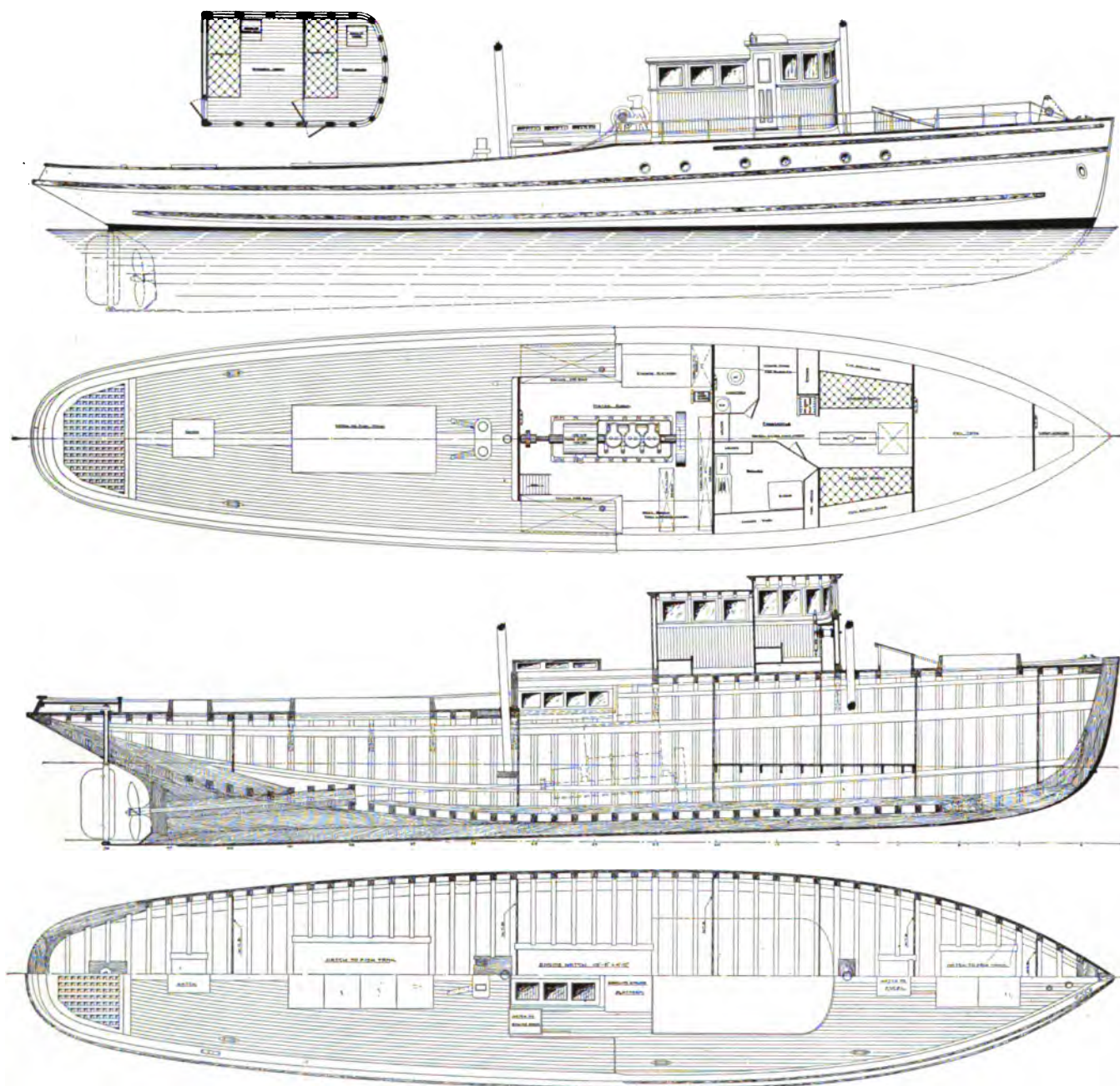
Forty-Four-Foot Raised Deck Cruiser. Designed by Mr. Morris M. Whitaker, of New York City



Thirty-Two-Foot Cruiser. Designed by Mr. V. D. Bacon, of Barnstable, Mass.



Accommodation Plans of Thirty-Two-Foot Cruiser



Pacific Coast Salmon Cannery Tender. Designed by Mr. L. E. Geary, of Seattle, Washington

PACIFIC COAST SALMON CANNERY TENDER

THE 85-foot Pacific Coast salmon cannery tender Kenmore, shown in the accompanying drawings, was designed by Mr. L. E. Geary, of Seattle, Wash., for the Pacific American Fisheries company of Bellingham, Wash., which firm operates at that point the largest salmon cannery in the world, in addition to having other canneries on Puget Sound and several in Alaskan waters. She is intended primarily as a salmon trap and cannery tender, her usefulness being in her ability to make a round of the salmon traps which are located from six to twenty or more miles from the cannery, brail with her own hoisting engine the tons of fish from the pots of these traps, and with fifty or more tons of fish in her holds and like as not a scowload of fish in tow or alongside, to run back to the cannery with her cargo. Speed

and power are requisites, for the big cannery of the "P. A. F." as it is familiarly known on Puget Sound, has nine lines of canning machinery, capable of packing nine cans of salmon a second, or 32,400 lb of salmon per hour, and to supply such a capacity with raw material from traps located a dozen or a score of miles away requires quick work.

In addition to her trap tender work, it is also understood that Kenmore is to be used to guard the salmon traps at night against the depredations of the gangs of fish pirates who for years have been systematically robbing the traps of fish under the cover of darkness. The thefts of these pirates has totaled many thousands of dollars' worth of fish. With swift boats like Kenmore, equipped with searchlights, it is hoped to keep these marauders away from the traps during the fishing season, or possibly to seize and apprehend some of them.

Kenmore is the largest and speediest gasoline cannery tender afloat. Her power equipment consists of a 100-h.p. Frisco Standard engine which, on her trial trip, gave her a speed of $13\frac{2}{3}$ miles per hour. In addition to the main engine, the boat is equipped with a 9-h.p. machine of the same make, which operates the hoist which is used to empty the fish traps, and a 6-h.p. engine which operates the $2\frac{3}{4}$ -k.w. lighting plant. The latter furnishes power for twenty-five incandescent lights throughout the boat, as well as to a powerful searchlight.

The speed of the boat under all conditions of wind, weather and loading was made a prime requisite in working out the design. For this reason a small trimming tank was placed forward to give an additional $\frac{1}{2}$ knot when heavily laden. The vessel has a fish carrying capacity in her two tanks of 54 tons, and as she will never be called upon to make extended trips the fuel capacity will be kept down to 1,000 gallons. For the same reason no attempt was made to provide large quarters for the crew. Unlike many of the Alaska cannery tenders, which run back and forth between Puget Sound and the North under their own power, and which during the season in the North often have to cruise 100 miles or more, it was the intention that Kenmore's trips would be comparatively short, most of the Puget Sound traps being within a compass of 20 or 30 miles. Hence her owner's desire to sacrifice the room and comfort which in the Northern tenders are necessities, to the speed and seaworthiness and carrying capacity which was required in the Puget Sound boat.

Provision is made, however, for a large galley and for sleeping a crew of four, two in the pilothouse and two in the "Texas." The "Texas" is in the nature of an owner's room, and together with the pilothouse, is finished in mahogany and white enamel. The finish of the boat throughout is most substantial, no pains being spared to make her strong and seaworthy, and she is designed to run in all kinds of weather on both the lower Sound and the Straits of Juan de Fuca.

On her trial trip Kenmore made the run from Seattle to Bellingham in 7 hours 16 minutes, taking the outside passage and bucking a 40-mile Northwest gale in the Straits, which gave her a good try-out from every standpoint. In all qualities she has proven a satisfaction to her owners.

However, instead of being used on the Sound and Straits she was sent to the new P. A. F. cannery to the Westward in the Aleutian Islands, which is the farthest North cannery. She recently returned after a successful season, where she tended a cannery that packed 58,000 cases of fish. The engine is a three-cylinder $11\frac{3}{4}$ by 15-inch Frisco Standard giving 130-h.p. at 260 r.p.m.

General dimensions are:

| | |
|------------------|------------------|
| Length o. a..... | 85 feet 0 inches |
| Breadth | 16 " 6 " |
| Draught | 5 " 6 " |

HIGH-SPEED TENDER

O-ME-O-MI is the rather startling appellation that will identify the smart little cabin tender that the Luders Marine Construction Company of Port Chester have designed and are building for a very prominent member of the New York Y. C. as a tender to his steam yacht.

The boat is not to be swung on davits but is to act as a ferry between the yacht and the shore station, for the benefit of the owner's guests.

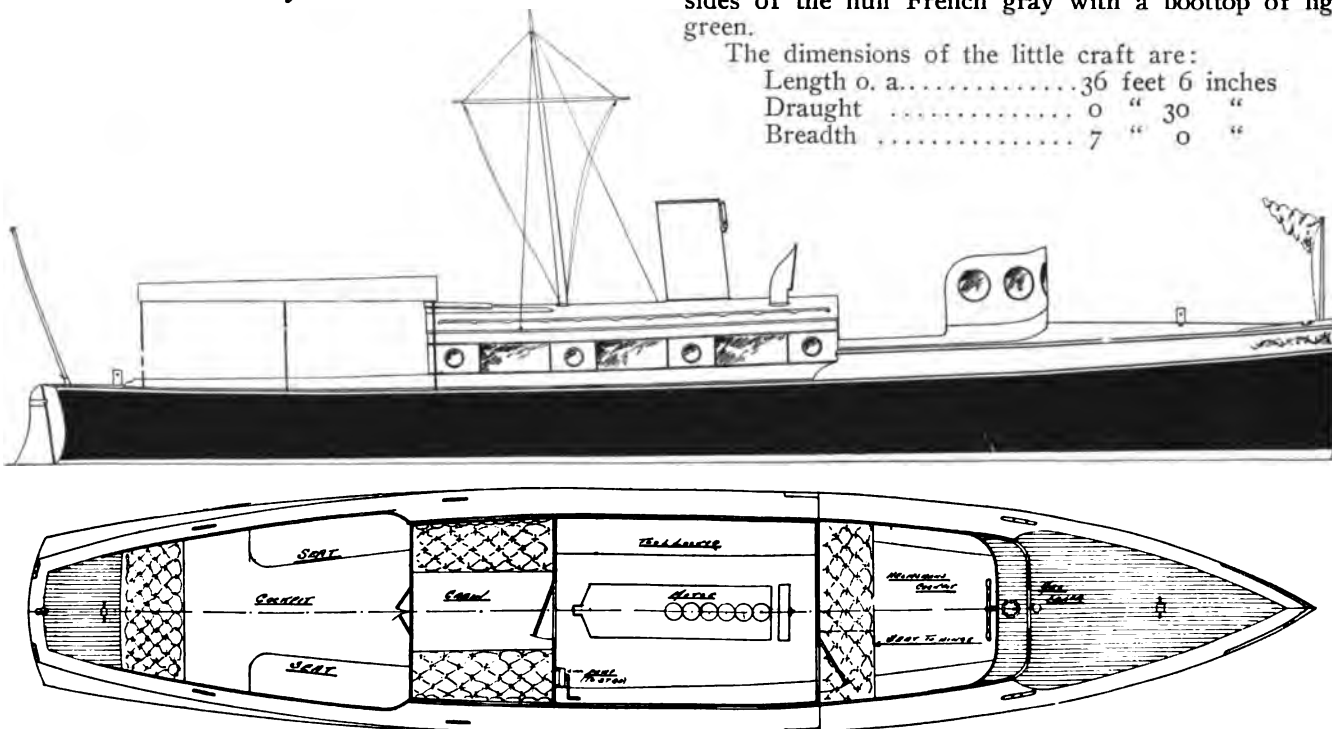
A small cabin, four feet long, is provided as a retreat in case of very wet weather; under ordinary conditions sufficient protection is obtained in the after cockpit.

The boat will be steered and controlled from the forward cockpit though an engineer will at all times be located in the engine room to care for the engine, a 60-h.p. Loew-Victor, that is expected to drive the boat at a speed of 17 miles per hour.

The finish of cabins and desks will be of teak; the sides of the hull French gray with a boottop of light green.

The dimensions of the little craft are:

| | |
|------------------|------------------|
| Length o. a..... | 36 feet 6 inches |
| Draught | 0 " 30 " |
| Breadth | 7 " 0 " |



High-Speed Tender. Designed and Building by the Luders Marine Construction Co., of Port Chester, N. Y.

68-FOOT W.-L. TOPSAIL SCHOONER

THE square-rigged sailing vessel is regarded by many as the noblest work of man. It would be hard indeed to find among human creations a more beautiful sight than a ship under full sail. Most yachtsmen regard the square rig as picturesque but utterly impractical for any but the largest ocean-going yachts and merchant vessels. So it was until the advent of practical explosive engines of high power.

This is the day of full-powered auxiliaries, vessels that can force their way to windward at any time under power alone and sail with the out-and-out sailing yacht practically unhandicapped by their relatively small burden of machinery. To such the square rig is perfectly adaptable.

The topsail schooner shown herewith is an interesting example of the possibilities of square rig for a cruising yacht. This design is by Norman L. Skene, of Bedford, Mass., who has made a study of the adaptation of the square rig to yacht work. The vessel is intended for ordinary coastwise work, with the possibility of a long ocean voyage. A glance at the profile is sufficient to show her fitness for ocean voyaging. The topsail schooner rig is admirable for ocean work. All sails are small and easily handled by a small crew. The square-sails individually are mere pocket handkerchiefs and may be rigged to haul in and out on the yards and thus be handled from the deck. They aggregate enough area to drive the vessel smartly off the wind. With the short main-boom and yards securely braced this little ship will run off before a big breeze and sea in great comfort. At the same time the rig has the advantage of sufficient

fore-and-aft canvas for beating to windward without the square canvas if desired.

The hull form is that of the steel seagoing clipper ship and is far abler than the usual yacht form. Liberal displacement, freeboard and flare forward with short, graceful ends afford the maximum seaworthiness.

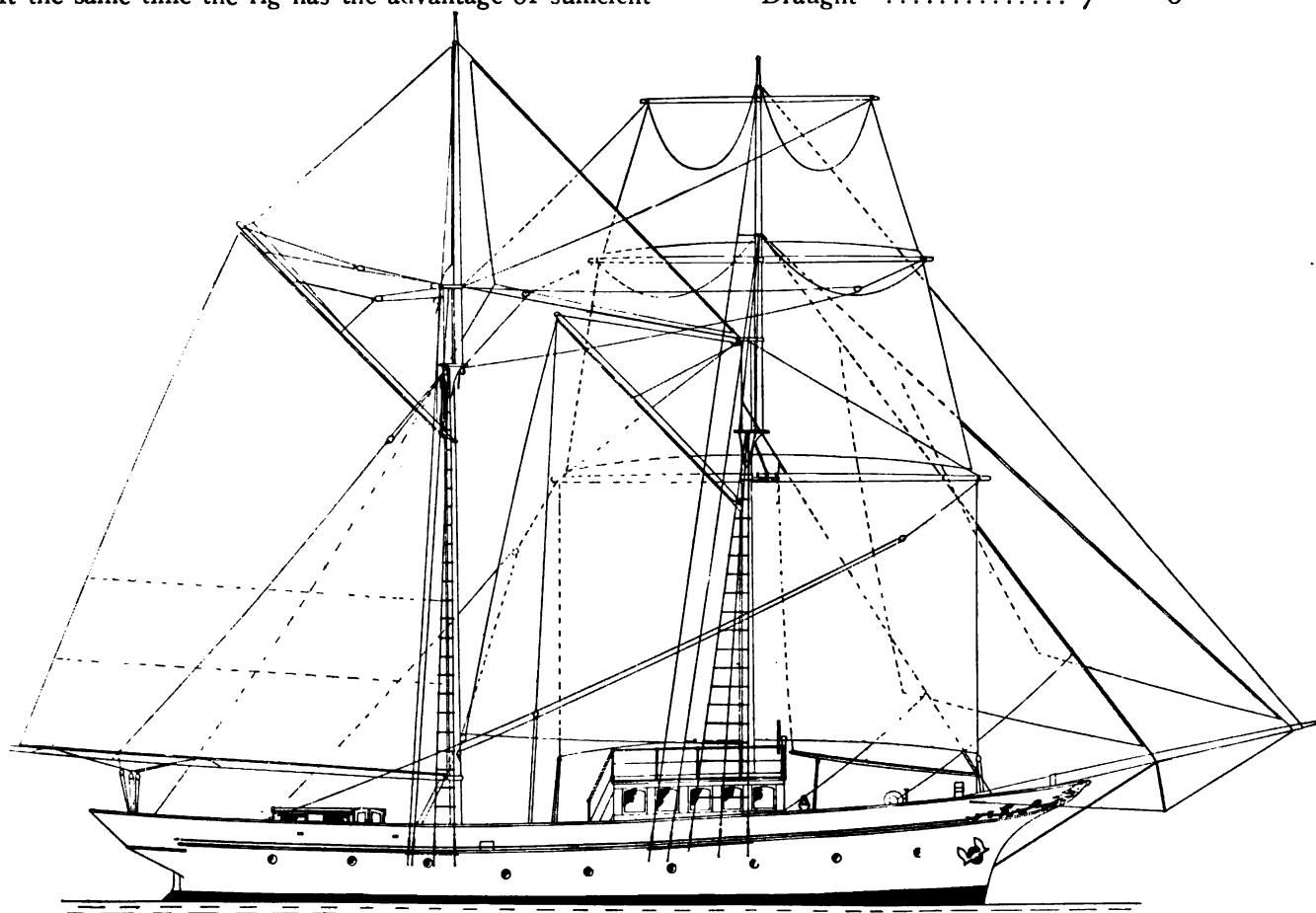
Bulwarks are two feet high amidships with forecastle and poop decks raised one foot. The deckhouse has its floor depressed two feet below the main deck. This is large enough for a dining saloon and will be the social and navigating center of the vessel. Beneath are the engine room and galley, reached by a staircase from the deckhouse. The 60-h.p. engine has plenty of room all about it and sets horizontally. Steel bulkheads at each end of the engine room contribute safety and strength. The tanks are against the after bulkhead.

Abaft the engine room is a large stateroom the width of the vessel, with stairs leading to deckhouse. Abaft this the lobby with berth and a large bathroom to starboard. A commodious double stateroom is way aft. The lobby is reached by stairs from the deckhouse above. There is 7 feet headroom throughout. Comfortable accommodations for a few, for long cruises is the keynote of the layout.

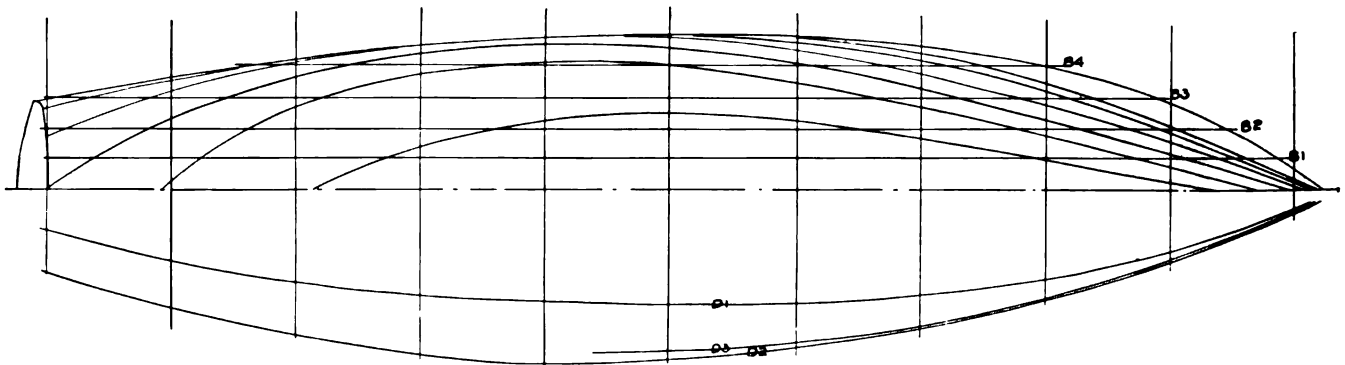
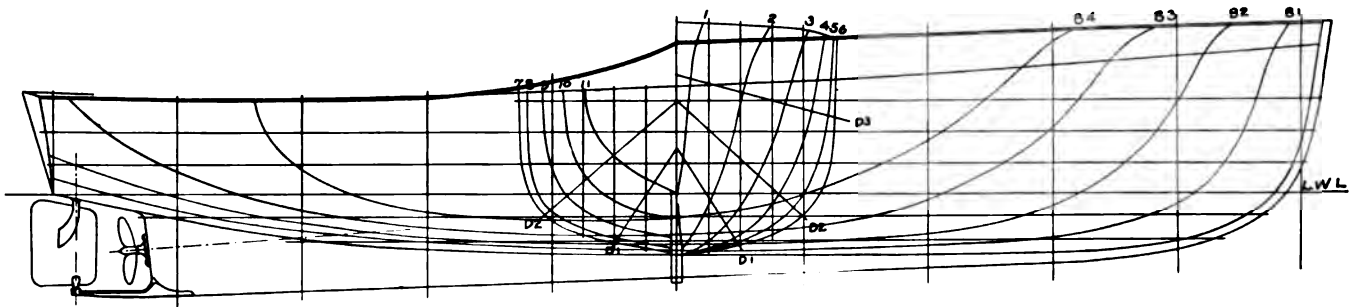
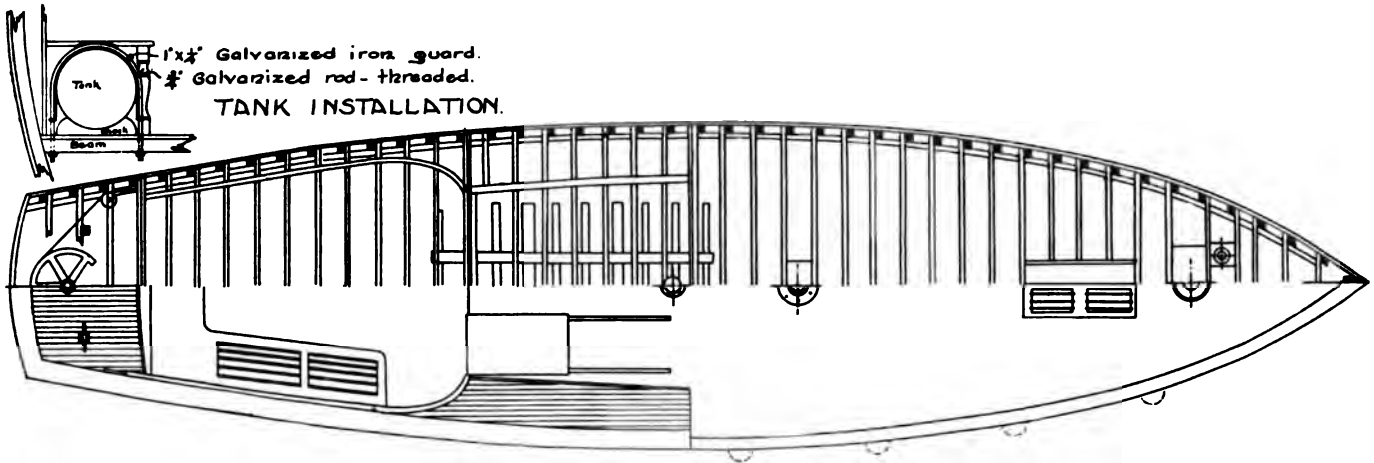
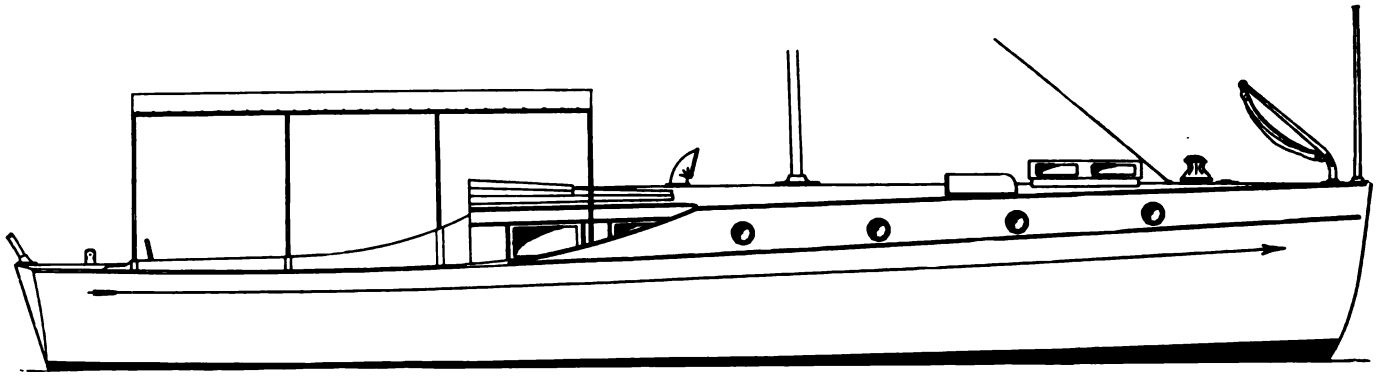
The vessel is steered under power from the bridge or forward deckhouse or in bad weather from within the deckhouse. Under sail she would be steered from a regular steering gear on the rudder head.

Dimensions are as follows:

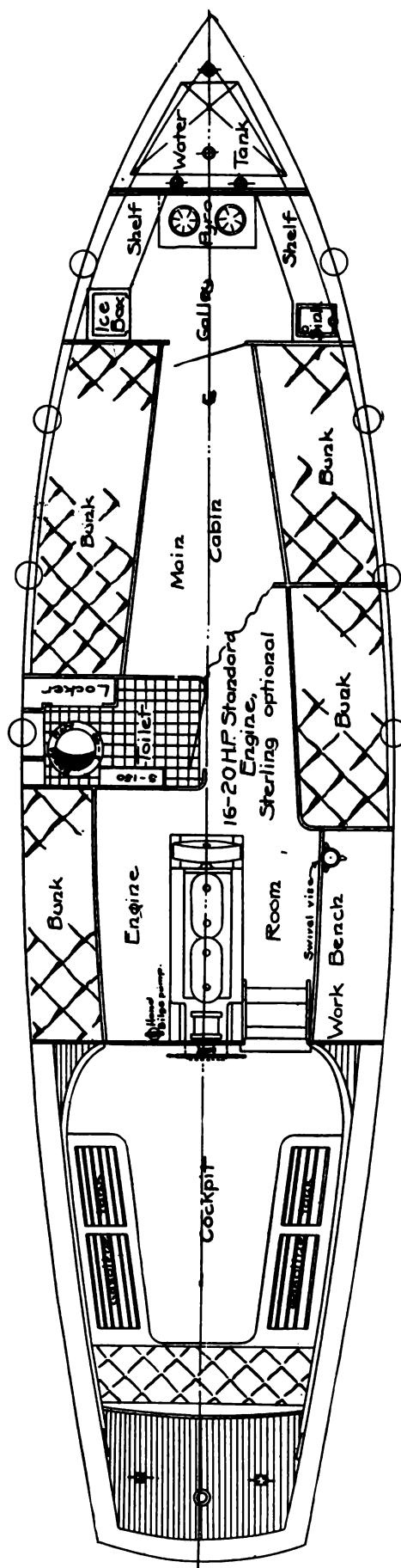
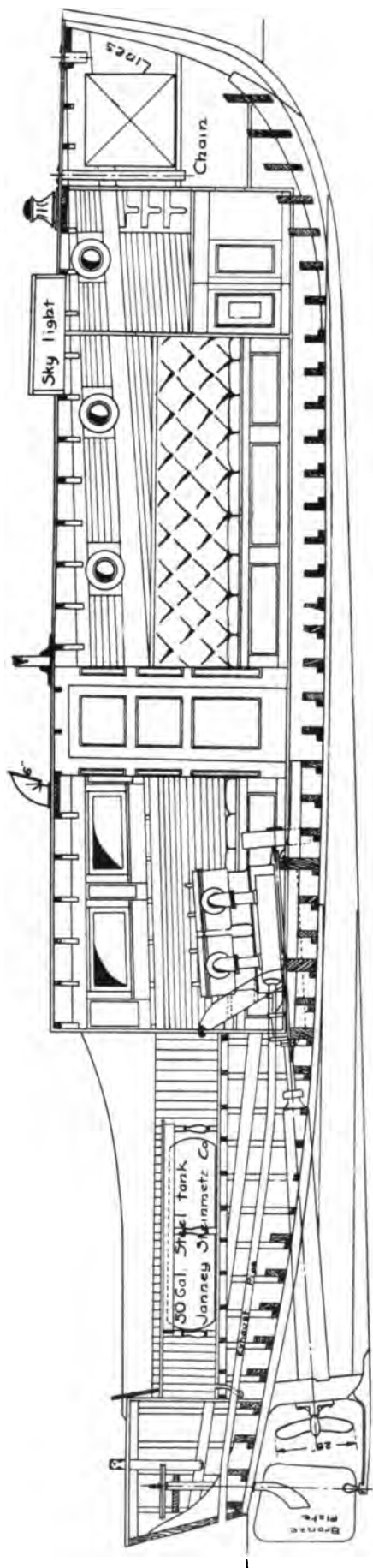
| | | |
|-------------------|----|---------------|
| Length o. a. | 79 | feet 5 inches |
| Length w. l. | 68 | " 0 " |
| Breadth | 17 | " 6 " |
| Draught | 7 | " 0 " |



Sail Plan of Sixty-Eight-Foot Auxiliary Topsail Schooner. Designed by Mr. N. L. Skene, of Bedford, Mass.



Designing Competition. Plan of Forty-Footer, Submitted by P. Thearle, Chula Vista, California



Accommodation Plans of Mr. Thearle's Design

THE NEW YORK SHOW

WHEN the rumor went abroad that The Garden—the famous Madison Square Garden—had been sold and would shortly be torn down, to more than one enthusiast and many a manufacturer came the thought—Where will they hold the Show this year? The Show Committee of the National Association of Boat and Engine Manufacturers cast about for a location and had just about time to congratulate themselves upon having secured a favorable site when the Garden again became available, through a change of plan, and the Show Committee of the Association was able to arrange to again hold the exhibition in the old setting. In the shift of events the committee found themselves without the assistance of considerable deadwood which formerly was a feature of the management and were, fortunately, forced to go it alone, and, although the members of the committee are busy manufacturers and not showmen, they conceived, executed, and brought to a successful conclusion by far the best exhibition of its kind ever held, and not only that, but competent judges state that the show was one of the best exhibitions ever held in the Garden. The gentlemen who found time to do all this in connection with their own business are Messrs. John J. Amory, Eugene A. Riotte, James Craig and Henry R. Sutphen, ably assisted by Mr. Ira Hand, secretary of the Association.

The decorative scheme this year was both unique and effective—two enormous canvases covered the sides of the Garden on which were depicted, on one side the Olympic and on the other the Mauritania, the effect being that of a huge wharf filled with power craft and engines. The back showed a marine scene with a cruiser, a torpedo boat destroyer, and Dixie IV dashing along, viewed apparently through the end of the wharf. To add to the effect the gallery, upon which were placed the less bulky exhibits, was arranged as one of the decks of the respective vessels moored to the imaginary wharf, and the scene—when the crowds began to fill the gallery or rather decks—was quite realistic, quite like a North River pier on sailing day.

This year found more than the usual number of complete boats on the floor, and to the delight of those who love a good craft, the miserable bunch of junk which in former years was permitted to occupy valuable space, was missing, and there was not shown a single craft that did not have some merit, even if some of the cheaper ones did need a bit of smoothing. The most attractive craft in the exhibition was without doubt the 53-foot twin-screw, high-speed mahogany day cruiser fresh from the works of the Gas Engine & Power Company and Chas. L. Seabury & Co., Cons. This boat is as beautifully constructed as any piece of high-grade furniture. The propelling power consists of two six-cylinder, 6 by 6 Speedway engines which were installed in a most compact manner. Another fine specimen of the boat-builders' art was shown by George Lawley & Son Corporation. This craft is a 35-foot runabout equipped with an 18-h.p. Sterling engine, and while no attempt was made to produce a piano finish her appearance spells utility in

every line, and as a piece of nautical workmanship is second to nothing of her type seen at the show.

A rugged 40-foot cruiser was shown by the Standard Company. In type the craft is of the class developed by the long-distance races and should prove a fine, comfortable coast cruiser.

The small speed boat part of the exhibition was most interesting, the center of attraction being the 20-foot Dixie Junior, designed by the same firm who turned out the famous Dixie I, II, III and IV. The craft would have attracted much attention anyhow but when the sign came into view—"thirty-five miles per hour or no sale"—the interest thickened and the boat came in for no end of complimentary criticism. Located in the stern—the proper spot for speed-boat engines these days—is installed a six-cylinder 5½ by 6-inch special Sterling engine. Quite a number of these boats were sold and the racing should equal in excitement anything that has yet been attempted along these lines. Another 20-foot, 35-miler was shown but in appearance it is decidedly of the freak type, the bottom having three metal planes of the corrugated iron roof variety, and the hull fitted with a couple of ridiculous tin-bucket seats of the near-racing automobile type. The lines of the craft, however, are from the board of Irwin Chase, one of the younger designers who already has an enviable reputation. A funny little box named June Bug, 14 feet long and equipped with a 25-foot Fox engine, was shown in the space of S. S. & R. P. Breeze, who make a specialty of designing small flyers of this type. The boat was built last season by Robert Jacob and developed a speed of 31 miles per hour. Another flyer for which wonderful speed is claimed was shown by the Smith-Ryan Company. This craft is a single-step hydro, 26 feet over all, equipped with two generously sized air-ports placed in the region of the step. The power plant is not particularly powerful, but according to the demonstrator the air-ports make possible the speed claimed, which was truly wonderful. Besides the remarkable marine skyrockets, there were no end of medium priced boats for the man who is able to get pleasure out of a comfortable craft even though she may be unable to attain a speed of 90 miles per hour. The dories shown by the Atlantic and Toppan companies came in for their share of attention. In particular was noticed, in the Toppan space, a 27-foot cabin cruiser which for value received will take some beating, and in the Atlantic booth a powerful 30-foot Gurnet dory equipped with a 10-h.p. Atlantic Special engine, which looked to have all the qualifications of the true seagoing power boat.

In the space of the Ludens Marine Construction Company was shown a fine 20-foot fishing boat of a type that would serve well for passenger carrying, as a club launch, or even as a tender for a large yacht. A bulkhead divides the engine space forward from the spacious owner's accommodation. A single-cylinder, 6-h.p. Eagle furnishes the power and on the whole the boat is one of the most sensible shown in the Garden. Another boat of the safe and sane type is the 25-foot runabout shown by Fay &

Bowen. In type the craft is a development of the family and semi-speed hull built by this company. The power is furnished by one of the two-cylinder two-stroke 10-h.p. machines manufactured by the company.

The only high-speed cruiser shown was a 37 by 7 double cabin boat in the exhibit of the Lamb Engine Company. The craft was designed and built at the Lawley works, and equipped with a six-cylinder, 60-70-h.p. Lamb engine is expected to attain a speed of 17 miles an hour. Beautifully built and of a pleasing appearance this boat came in for a fair share of attention.

In the engine section the machine that might be termed the most spectacular exhibit of the show never got into the Garden at all. The S. M. Jones Company, builders of the *Ralaco*, desiring to demonstrate effectively the flexibility and other qualifications of their product, mounted one of their 20-h.p. models on a heavy automobile chassis, and during the week the outfit was busy from morning until night, and then some, cruising about the streets in the vicinity of the Garden—unable to run engines on gasoline inside the Garden it was on the whole rather a unique scheme as well as an excellent demonstration.

This year for the first time a Diesel type heavy-oil engine was shown. This machine, which is a two-stroke, six-cylinder outfit of 150-h.p. called the *Nuremburg*, was built by the New London Ship and Engine Company, and it is understood that the engines will be manufactured in quantities in the near future. All the engine men had a look at this monster.

An engine which held the attention of the racing men was the big six-cylinder 9¼ by 7½-inch machine in the Standard booth. This engine is one of a pair which the company has under construction for the British International Trophy defender *Columbia*. Another racing outfit which will be used for the same purpose was shown by the Van Blerck Company. This machine, also one of a pair, each of twelve cylinders, will be put into a proposed defender and is rated at 225-250-h.p., the bore being 5½ inches and the stroke 6 inches.

The heavy-duty type, suitable for the larger cruisers, was ably represented in the big fellows shown by the Standard Company, James Craig, the Gas Engine & Power Company and Chas. L. Seabury & Co., Cons., Wolverine, Buffalo, and Lamb. In the Craig booth was shown a rugged four-cylinder 100-h.p. machine of 9-inch bore and 10-inch stroke, duplicates of which are installed in many of the larger auxiliaries. The big Speedway machine rated at 225-265-h.p. is of the air-starting and reversing type, with a bore of 11 inches and a stroke of 12 inches. A feature of the machine being a flywheel brake to stop rotation when reversing. Two of these big fellows have been ordered to replace the present power plant of a well-known steam yacht.

A six-cylinder engine of somewhat different exterior appearance in some respects was shown by Murray & Tregurtha. The machine, a 6½ by 8 and rated at 40-65-h.p., has a wooden covering on the cylinder jackets, which gives the engine the appearance somewhat of a steam plant. Another clean-cut engine is that put out by the Jencick Motor Corporation, which machines are favorably known through the excellence of the material entering into their composition.

No end of efficient machines of every type were shown and it would have been difficult to have proposed a requirement that could not have been met, but even a brief description of the show would be incomplete without mention of the fact that Fay & Bowen, known throughout the world through the fame of the two-stroke F. & B., are now manufacturing four-stroke machines, two of which were on view, one a four-cylinder 5½ by 7, 30-h.p. heavy-duty type, and the other a lighter model, also of four cylinders, 5 by 6¼, rated at 30-45-h.p.

The gallery this year was entirely given over to marine accessory and engine equipment and the showing was most complete. This branch of the industry has grown wonderfully in the past year or so, and largely to this condition naturally is the perfection of the complete outfit due.



General View of the Exhibition. Note the Unique Decorative Scheme



Standard Motor Constr. Co.



Murray & Tregurtha



Morton Motor Co.



Thelma and Kent Engines



Stanley Engines



Reynolds Rotary Valve Engines



Devoc



Gray Motor Co. Diagram



Wolverine Engines



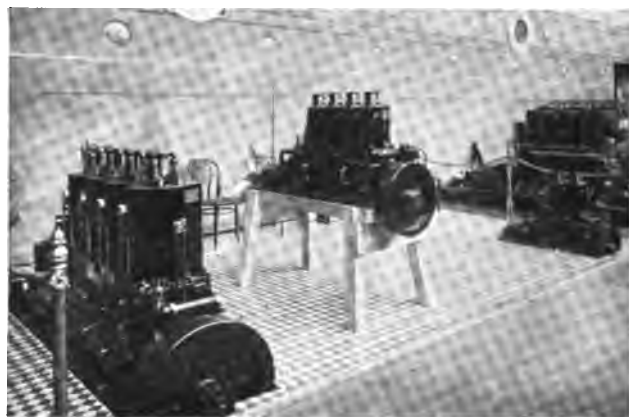
The Atlantic Co.



Jencick Motor Corporation



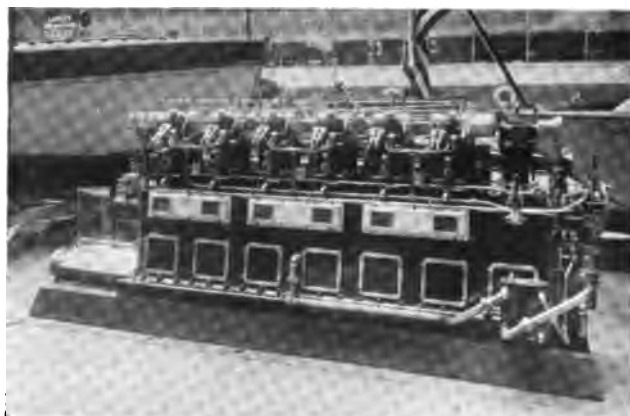
Buffalo Gasolene Motor Co.



Ralaco Engines



Smith-Ryan Boat Co.



New London Ship & Engine Co.



Lackawanna Engines



Eagle Engines



Geo. Lawley & Son Corporation



Gas Engine & Power Co. & C. L. Seabury Co., Cons.



Fay & Bowen



Havoline Oil Co.



Valspar



Sterling Engine Co.



Roberts Motors



Evinrude Motor Co.



Toppan Boat Mfg. Co.



Grimm Marine Engines



Bosch Magneto Co.



Dixie Junior



N. Y. Yacht, Launch and Engine Co.



Columbian Wheels



Craig Engines



Lamb Boat & Engine Co.



Vim Motors



Anderson Engines



Doman and Grimm Engines



Fairbanks, Morse & Co.



Loew Victor Engines



The Gasolene Engine Equipment Co.



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Vol. XXVII

No. IV

APRIL,
1912



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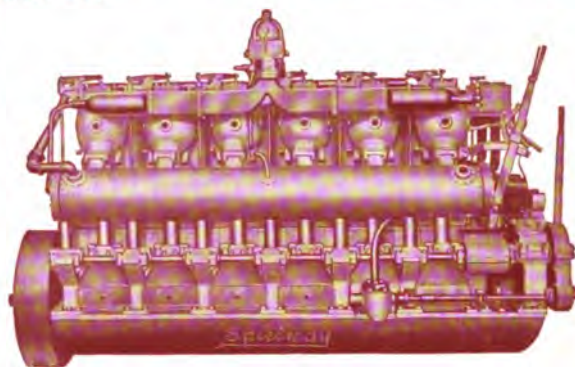
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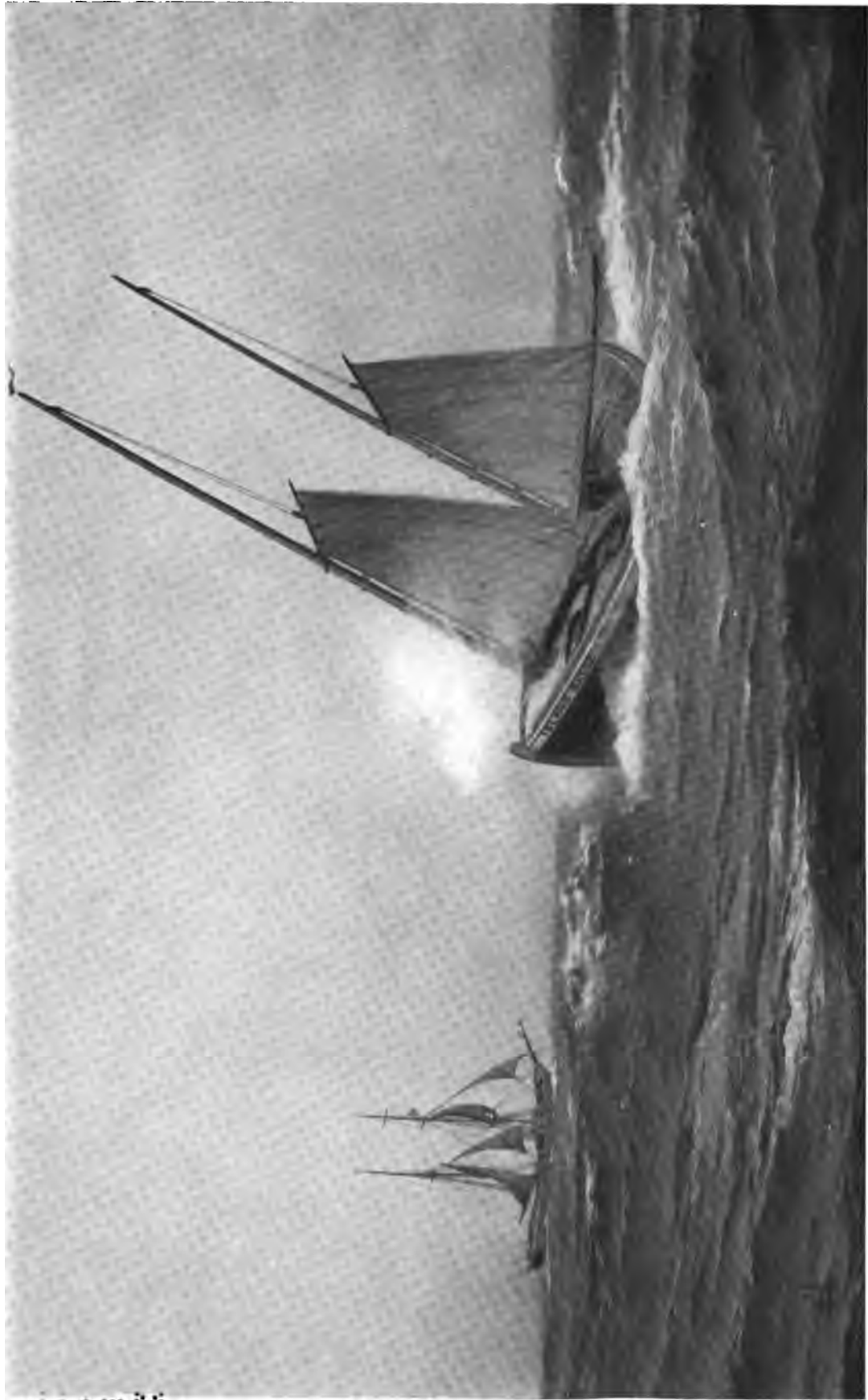
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Block Island Boat

From a Painting by Warren Sheppard

U.S.N.

The Rudder

Edited by THOMAS FLEMING DAY

Vol. XXVII

APRIL, 1912

No. 4

ROARING BESSIE

Photos by James W. Carret and
Chas. J. A. Wilson, Boston Y. C.



COURAGE must be his who would essay the unusual. Man is a conventional animal. He wears a hat of a given shape and color because a majority of the men he knows wear similar hats. He builds a boat on certain lines because the designer or builder tells him "that is the way they are building them now." To such a degree has conventionality and a slavish following of fashion possessed modern yachtsmen that our most expensive yachts, in their respective classes, are as alike as peas. Only the trained eye can distinguish one boat from another

in an up-to-date racing class, and then the feat is usually performed by the aid of some distinguishing mark of an ulterior nature, such as the color of a mainsail or of a cabin top. Even the owner of such a boat must have some mark by which to distinguish his property from his neighbor's, on the same principle as the man who lives in a city block and tells his own house only by the shape of the mud-scraper on the stoop. Indeed, the conventional yachtsman is in much the same position as the youth who married a twin, who could only be distinguished from her sister by a mole on her person.

Turning from the conventional, which is always colorless, we are refreshed by the man who knows what he wants and has the courage and ability to get it, without regard to fashion. Such a man is the owner of the boat whose name appears at the head of this article. Even in the selection of a name for his ship he turned from the smooth and polite forms of society. What "Roaring Bessie" may mean to the next man he cared not; to him it was like the name of some bouncing young dame out of an old chantie—a sailor's sweetheart, a girl of the beach and the port; a fisher-wench, maybe, on some Breton sands; at any rate, a breezy, companionable, hard-working, honest creature of sea and shore

Winfield M. Thompson

tales. Why she should be termed "roaring" may be known only to the originator of the name. Possibly a droll humor prompted him to register his views of the conventional yacht, and conventional yachting names, in that way. Yet the ancient dramatists bear him out in a legitimate use of the word, for they often speak of "roaring girdles," whose gay and frolicsome manners won them this title, while "to roar along" in olden time meant to go briskly. This latter sense was not overlooked by the owner of Roaring Bessie, and a brisk-stepping lass his ship proved to be.

Roaring Bessie roared, and made merry, among the yachts of the New England coast in the season of 1911, like the sailor's sweetheart she was, and in every marine picture of which she formed a part she looked like a section of an old Dutch painting. William Vandervelde, marine painter to Charles II, and his son, both painted such craft. In a museum at Rotterdam is a painting by an unknown artist, dating from about 1642, of a rig identical to that carried by Roaring Bessie, with the short gaffs, lug-foresail and mainsail not laced to the boom, all in like aspect and proportion. It is not unreasonable to say, therefore, that Roaring Bessie, with her rig three centuries old at least—for it was old when painted in 1642—was the most striking American yacht of 1911.

Her owner's fancy having led him to paint her pea-green, she was striking for another reason. As soon as she rose her stubby gaffs above the horizon she was notable, and when she sailed, a green streak, across the nearer view, no man could escape her presentment. Therefore, wherever she appeared, the stranger asked: "What kind of boat is that, and who owns her?"

The answer was usually promptly forthcoming: she was a Block Island boat, the only one of her kind, and her owner was Martin C. Erismann, a naval architect, who was a member of the Corinthian Y. C. of Marblehead, and of the Boston Y. C. (Mr. Erismann is now a resident of Seattle, Wash.)

Nine persons in ten, after critical observation of Roaring Bessie, might be depended on to say, "Mr. Erismann is welcome to her," or words of like import. The tenth man might remark that Mr. Erismann was a man of original tastes, while all agreed that he had courage.

It was the tenth man only who approximated an understanding of Mr. Erismann's purpose in building



Lena M. Last of Her Kind at Block Island

Roaring Bessie—for the boat was in her first season, though of ancient rig and model. Mr. Erismann is a student of the origin in everything relating to present forms and customs in yacht-building. Indeed, I doubt if any other man has given more thought than he to what may be called the original documents in American boat-building; that is, the lines from which our boats of to-day were developed. He has studied all that has been written on the subject; but treating written knowledge merely as second-hand, he has turned to the sources of such knowledge, the early boats themselves. To do this he was obliged to hunt up ancient boats on various parts of the American coast, and also in Europe. He was fortunate to have, as an aid in this work, affiliations with both hemispheres, for though an American—he was born in New Jersey, being descended on the maternal side from the old Coryell family, of Coryells Ferry, now Lambertville—his father is a native of Geneva, Switzerland, and there Mr. Erismann received his early education. First-hand knowledge of European boats merely whetted his appetite for the study of American types, and their relation to European originals. After finishing his naval-architecture course at Glasgow, therefore, now more than a dozen years ago, Mr. Erismann, settling in his native America, began his study of old American boats.

While working for a shipbuilding concern in Maryland he had opportunity to study the ancient sloops of the Chesapeake, and he bought one of the oldest he could find. The shell-back he hired to assist him in making this craft fit for service (of a somewhat limited character) was seen to tap his forehead significantly when his employer's back was turned, and whenever they sailed forth instinctively he measured with his eye the distance to shore on every tack.

Going to New England, Mr. Erismann began the study of several types of New England boat of which he had read, but which he had never seen before.

Among these he found the pinkie the most interesting, both on account of its importance in American maritime history and its many good qualities from a technical point of view. Not many pinkies survive, but Mr. Erismann found one, in a little harbor on the New Hampshire coast, and through the courtesy of its owner, a wealthy Bostonian, was enabled to take off its lines. It was the first time, probably, that the lines of one of these craft built in America—the type is as old as the ships of Columbus—was ever transferred from the actual hull to paper, on the coast of New England at any rate, and the American pinkie no longer exists anywhere else.

It was in the course of his study of the pinkie that Mr. Erismann found an excellent example of the Isles of Shoals fishing boat—they were of the double-ender type—and the lines of this he also transferred to paper. This boat he found lying under a hotel piazza on one of the Isles of Shoals. The type has since become practically extinct, as not a single boat of the kind was afloat at "The Shoals" in 1911.

Continuing to devote his time and means to his study of ancient craft—for the benefit of future generations of naval architects, be it said, since he could hope for no present gain from such pursuits—Mr. Erismann turned his attention to Block Island boats, the most celebrated type of working boat in America in the last century, without question. When Mr. Erismann first began to study the type there were several of the boats afloat at Block Island. (A group of them are shown in a photograph appearing in *THE RUDDER* for March, 1912, in an article on Block Island.)

The yachting world had heard something of them a quarter century before, through an article prepared by John Hyslop—for many years measurer for the New York Y. C.—which was printed in the *Field* (London),



Owner of Roaring Bessie (on a Seattle Power Boat)



A Viking Pose. Roaring Bessie

of December 15, 1883, together with the lines of one of the island boats, Island Belle. As the main points of the type cannot be better presented than through the words of this trained observer, who studied the boats when they were the chief means of transportation for the numerous inhabitants of a sea-girt island, I give the following extracts from his article:

"About sixty of these boats are at present (1883) owned on the island. They vary in length from 20 to 40 feet. . . . The boats are all lap-strake $\frac{7}{8}$ -inch cedar plank on 2-inch bent oak frames spaced 13 inches on centers, with bent floor put in between and extending halfway up the sides. They are all keel boats. (At that time also they were chiefly open boats, with a small decked space between the second and third thwarts, for shelter and stowage.) The masts are all made very small at the head, and with a straight taper, those of the Island Belle measuring 9 inches diameter at the foot and about 3 inches at the head. They are made of spruce, and without shrouds or stays of any kind.

. . . . The stem and stern-post rake, the mainsail has a loose foot, the foresail is without a boom, the main-sheet has a traveler across the stern. The sails are liberally supplied with reefs, namely, five rows of points in the foresail and four in the mainsail; but the running gear is reduced to a minimum—one halyard for each sail.

"I have not been able to hear of a single instance of one of these boats being blown off. I have, however, learned of cases where a five-reefed foresail had been more than could be carried, and they have got into harbor under a mere scrap of canvas. I am told that they can work to windward under foresail alone, or under part of it, and that, when caught in a bad blow on the fishing grounds, 10 or 15 miles off port, they will get

under sail and make their way into harbor and leave schooners (much larger vessels) lying to and unable to follow."

Mr. Hyslop pointed out that only one of these boats had been lost in a century, and that foundered after striking a rock off Point Judith. The Island Belle was used for transporting the mails to and from Newport, 20 miles away.

"It rarely happened that any delay was made on account of weather," wrote Mr. Hyslop, "though it often occurred that the crews had a rough time on the passage, and appeared at Newport with their sou'westers and oil clothes thickly covered with frozen spray. The boats sometimes carried to and from the mainland cargoes for which their small size would appear to make them little adapted, such as several teams of oxen and a lot of window sashes at the same time."

Mr. Hyslop went out in the Island Belle in a strong breeze, and noted that the boat was handled easily by a man and a boy, though she was 38 feet 8 inches long, and 13 feet 8 inches breadth of beam. He noted specially the use of portable "weather-boards" fixed to the rails by means of pins, to keep out spray to windward or wash to leeward, the boats being rather low-sided. He also noted the characteristic pin-rack, for securing the tiller. "With sheets flat aft," he wrote, "a full press of canvas, and the craft jumping to windward in a very lively fashion (she had a very buoyant and springy motion), the owner would stick a pin into the midships hole of the pin-rack, put the tiller over the weather side of it, go into the waist, and with the boy pick up a



Steering Herself



Closehauled

weather-board, adjust it to the gunwale quite deliberately, and resume his steering when he was ready. When he wanted to go about he would put the helm down, jam it behind the gunwale and go off and help the boy to haul the foresheet. The main-sheet of course would travel over without attention. At about this time I saw near us a handsome fishing schooner, many times our tonnage, under shortened canvas and diving bows under at every plunge, while not even spray was coming aboard us, and the weather-boards were useful only in keeping out the wash to leeward. There was some very nimble dancing going on, however."

With such laudation before him of a type of boat that was historic for its notable services, and with the knowledge that the type was passing, and the last examples of it would disappear unless he did something to preserve them, Mr. Erismann visited Block Island, with the intention of buying one of the boats. The one he believed best adapted to his purpose, because of its age, unfortunately sank at its moorings about this time, and was not raised. He made no purchase then, and other matters intervening to prevent it, he did not again visit the island until 1910, after a lapse of some years. He found that Time's tooth had been gnawing deeply into the little fleet of island boats, and that but one remained afloat. The present writer had been at the island a few weeks before, and had seen this boat, the Lena M—at least a half-century old—lying in the basin of the Old Harbor, with a litter of discarded fishing gear, old spars, boxes and odds and ends on her broad deck, and had photographed her, with an eye to pre-

serving, by this means at least, the lineaments of the last of a noble line of craft.

To me the origin of the boats in the island—the means of their adaptation from Dutch originals—was an interesting subject of speculation, but nothing that I had read, in early island annals or elsewhere, threw much light on the subject. The early settlers of the island were English, from the Rhode Island mainland. There is a tradition in the island that an early wreck cast a number of Dutch immigrants on its shores, and there may be enough substance in this to account for the introduction of a purely Dutch rig among the islanders.

Not only the rig, but the dimensions of the Lena M were like those of early Dutch boats. Her length was about 32 feet, and her breadth about 12 feet. Like all of her kind, she was a "double-ender." As the last of her kind this boat represented such changes as had been made by the islanders in the arrangements of the boats, as a result of local experience. The original boats were open, or nearly so. Lena M was decked, with the exception of the cockpit. There was a "cuddy" forward, with rather low headroom, and a galley under the deck aft of it.

I examined Lena M critically, for I never expected to see her like again, not having information, at that time, that Mr. Erismann proposed to perpetuate the type by buying this boat, preserving her lines through his technical skill, and building a replica of her, for another half-century's preservation, with Fate's consent.

The enthusiasm of an antiquarian, a collector, a dreamer of old dreams, drew Mr. Erismann to the island, to secure that last boat. Cheerfully he paid the owner's price for the Lena M, hired a sailorman, fitted out the venerable craft, and sailed away Eastward. Here again he displayed courage, for the old hull was no longer sound, and you could feel the deck rise and fall, abreast the mainmast, as she rose and fell to the seas.

The voyage of the Lena M, being the last made by an original Block Island boat, is worthy of sentimental regard at least, and as recorded in the rough notes of the boat's log, set down by Mr. Erismann, its details cannot fail to interest the yachtsman, whatever his home waters. I present the log without elaboration:

Block Island, R. I., August 13, 1910.—At 2:30 a. m. cast off lines; was towed out near the bell buoy by a fisherman; made all sail in a light Southwesterly wind. Point Judith abeam at 9:30. Wind freshened between Point Judith and Narragansett Pier. Came into Newport with the tide. U.S.S. Georgia passed us abreast



View Showing Deck Arrangement



Roaring Bessie Off Marblehead

of Brentons Lightship going in. Opposite Brentons Cove rounded up and took in mainsail, then filled away under foresail. Boat handled well, considering she is foul. Tied up to the wood dockyard. Made enquiries for the boatyard. Williams & Manchester undertook to haul me out for \$5. Boat was towed around and soon out of water. Long grass on keel. I was very well satisfied with my boat when I saw her out. We scrubbed with fresh water at once, and painted. I had a shelf made in the cuddy for my clothes. The separate galley is a godsend, comfortable and handy and superior to messing up the cabin at each meal. Went into the town to get stores. Stores arrived late. I curled up in the foresail and slept till they came.

Sunday, 14th.—Fine day; still on the slip; foggy at times, wind S.W. We are going off at daylight to-morrow. Paid my bill, \$11, for railway, paint and work.

Monday, 15th.—Let off railway at 3 a. m. Underway at 4:30, in very light Westerly. Fog came in 7:30; off Brentons Reef buoy, wind very light. Seaconnet abeam 10:45, weather now clear, wind stronger from South. Headed up for Westport to get an old fishing boat I bought there last year. At noon took in mainsail and jogged about waiting for Captain Gifford to appear with boat. Not seeing him, proceeded in. Tied up in the slip. Had numerous visitors, all anxious to see the boat. After dinner tried to get small boat on deck, in vain; as she is so heavy to tow decided to make a dicker to send her to Fairhaven by boat and by train to Boston. Bought another boat of the same type for \$10. Transportation to Fairhaven \$10 for one, and \$12 for two.

Tuesday, 16th.—Woke at 5, to find water running in; deck leaking; N.E. wind; had rained all night. Canvased fore deck and made a good job before 12. This afternoon wind N.E.; drizzling from time to time.

Wednesday, 17th.—Rose at 6:30; wind still N.E. to E. but clear. Have all my clothes on deck drying. Went up to the store to see about stores and ice. Westport is a lovely place—peace reigns. All the men are gathered on the steps of the old store, in the sun, gossiping. Walked to the beach; straightened the galley; supper at 6. Turned in at 10. Clear, still blowing N.E.

Thursday, 18th.—Rose at 5:30, towed out at 7. Air moderate N., cloudy. Anchored S.W. corner Quicks Hole 12:45 waiting for tide as the wind is very light; weighed anchor at 2 and started through the Hole. West Chop at 5:10. Proceeded up harbor to Steamboat pier and tied up. Reeved a new main-sheet, and made new strops for foresheets.

Friday, 19th.—Got up at 3:30, and away at 5. Wind South, moderate, cloudy. Cross Rip abeam at 7:40 a. m. A number of schooners are going Eastward and we are holding on nicely with them. Handkerchief abeam 9:55, Pollock Rip at 12, abeam. Pollock Rip shoal 1:40. Wind fell, at 2:30 shifted to the Northward.

Saturday, 20th.—Highland Light abeam at 2 a. m. Wind light and from Northward; beat on and off till about 4 a. m., wind then strong and from N.E. Race Point abeam about 5 o'clock, laid course for Marblehead, N.E. $\frac{1}{2}$ E. Wind and sea increasing, changed course for Boston. Took two reefs in mainsail 6 o'clock, one reef in foresail 6:30; traveling well in spite of steep sea. Shook out our reefs at Boston Light 10:30. Hingham 11:45. Inquirers believed the boat to be from the Chesapeake.

Sunday, 21st.—Got underway at 10:30 in a light air, outside stronger from E. by S. Laid course for Marblehead through Black Rock Channel; Boston Light abeam 11:45. Marblehead Rock abeam at 1:55. Anchored in Marblehead Harbor. At 3 o'clock set sail with S.W. breeze. Came through Black Rock Channel. It is unlighted. Had, however, a good breeze and fair tide through Hull Gut. Picked up mooring at 8:30.

Monday, August 22d.—Cleared out the boat of all cruising duffle and paid man off and started him home for Block Island.

After a month or more of sailing in Boston Harbor and Massachusetts Bay—attracting much attention, for no boat of that sort had ever been seen there before, at least by the generation that beheld this one—the venerable Lena M was laid up for the season.

Mr. Erismann planned to have her overhauled before another season, and various repairs made. Preparation



Off for a Cruise

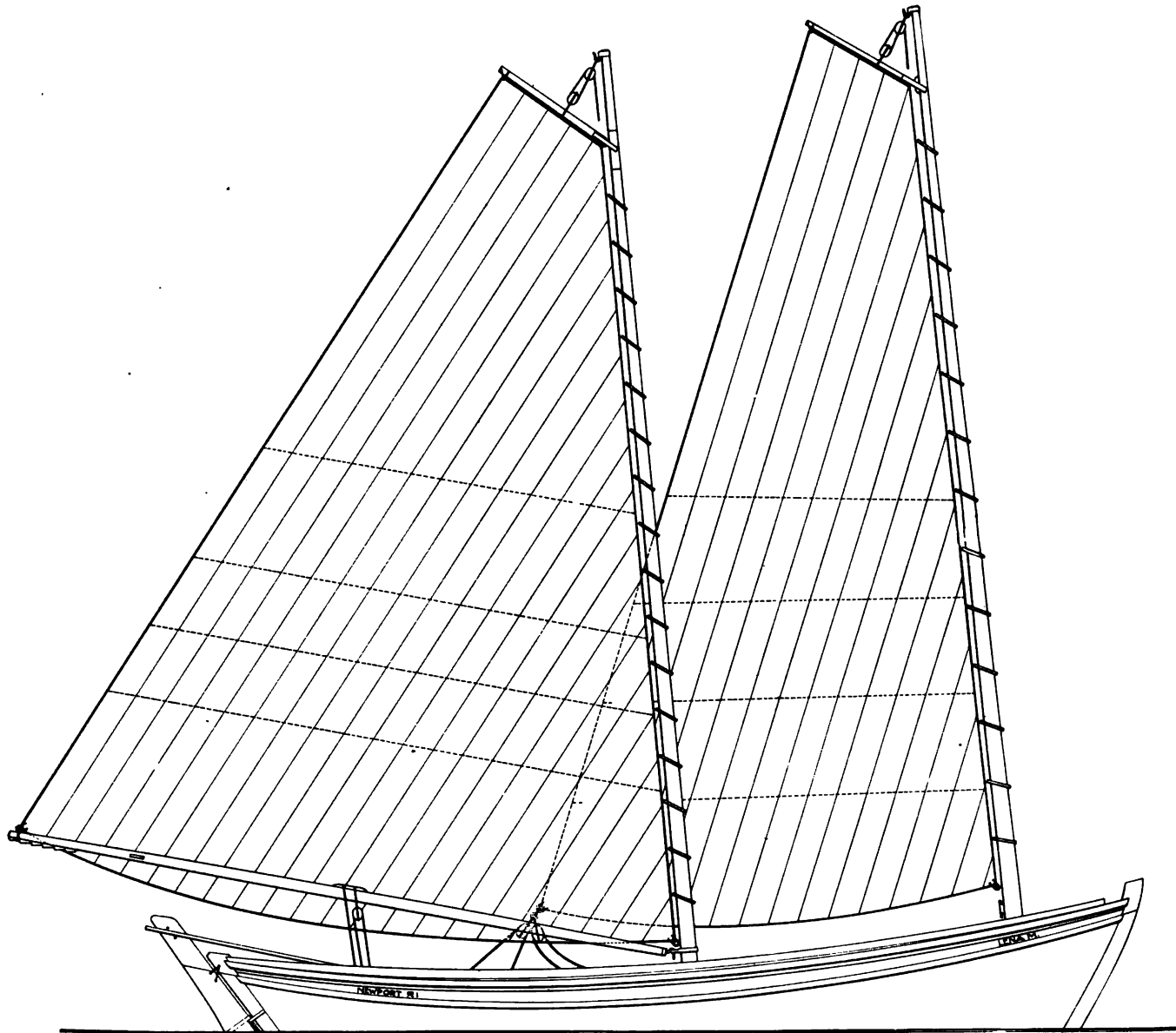
for this was made, at a Quincy yacht yard, by pulling out the ceiling in what had been the old fish-compartments. Alas for the man who starts to rip out the interior of a very old boat! He finds more than he had bargained for. The owner of *Lena M* discovered a condition of affairs that would have sadly upset his confidence had he known of them before that trip around Cape Cod. The boat's timbers were so "dozy" in places that he could pick out sections of them with his fingers. He began picking, until it seemed that he could pick out all the vitals of the boat. Then he quit long enough to get a figure for having her framed out anew, and newly ceiled, with a new deck and a few other things new. When he received the builder's estimate he backed out of the shop. It was enough to have covered the cost of the boat in the days when she was built, and much to spare.

Having the means of pursuing his experiments with boats as he wished, Mr. Erismann decided to reproduce *Lena M*. He took off her lines with his usual precision. These lines, here reproduced, will serve for those of *Lena M*'s successor, *Roaring Bessie*, since the new boat

was built to them strictly, the only changes made being in construction. The lapstreak plank was discarded in favor of a smooth skin, and the frames were made a little heavier. The work was done by Lawley, and was the equal in every respect of a first-class yacht job. Although the old builders at Block Island used to "warrant every nail," and get out every piece of oak in a boat's frame in the woods themselves, they could have done no better work than that in *Roaring Bessie*.

In rig and deck details *Roaring Bessie* was an exact copy of *Lena M*. Mr. Erismann's professional exactness went so far as to reproduce the flat forward deck, which gave scant headroom in the cabin. He could have had more headroom easily by raising the deck, but said: "That is not the way it is in the original. This is a historical copy. I will not change it." So he had but 4 feet headroom in his "cuddy," and but 3 feet in the galley, aft of it, under the main deck.

There was, however, a liberal hatch in the deck, and the cook, sitting on a stool and tending the fish chowder on the galley *Shipmate*, could view the scenery at the same time. There was a small ice-box, a fuel locker and



Sail Plan of Block Island Boat *Lena M*

bins for provisions in this galley, and in the "cuddy" a pipe berth and a transom, the whole making, barring the want of headroom in the galley, a comfortable cruising outfit.

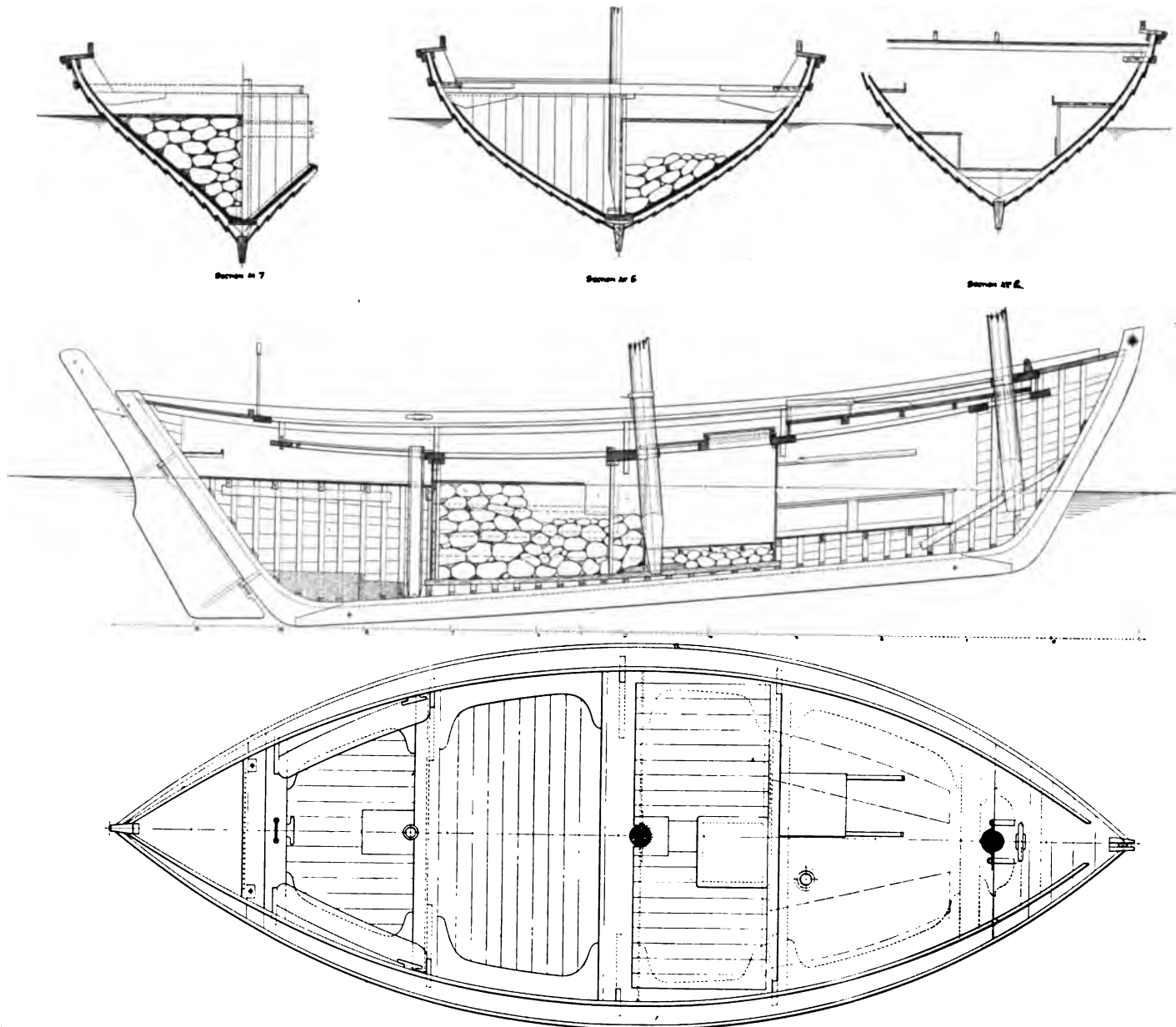
The large compartment between the galley and the mainmast was almost filled with field stones for ballast. Field stones had been used by the owners of the original boats, who believed they made their boats "lively" in a sea. Therefore Mr. Erismann used them. He found, however, when the boat was afloat, that he could not get stones enough in to bring her down to her water-line, so long as she was new. He added, therefore, a ton of lead, which was stowed over the keel. This made the boat stiffer than before, for with the stones alone she showed a tendency to be tender in a breeze.

It is a mistake to suppose these boats are great sail carriers. They have a short rig, and an ordinary yacht can lug canvas longer than they in a blow, and get away with it; but the Block Island boats will do better under short canvas than a yacht. Like all natural types, the result of centuries of development, they respond quickly

to intelligent treatment as to canvas. If reefed at the right time they will take you easily and dry through a gale. If not reefed they will lie down and wallow along slowly.

On such a boat, with everything inboard, there is no excuse for not reefing at the right time. The broad deck makes a firm and safe foothold, in pleasant contrast to the coach-roof of a yacht cabin-trunk. The fore-sail is reefed merely by tying the points under the foot of the sail, and shifting the mainsheet block sister-hook from the lower cringle to one about 6 inches above the row of reef-points that have been tied in. The mainsail being loose-footed, reefing it, and pulling it out on the boom is the simplest sort of process. As for hoisting away after reefing, it is very easy, as the gaffs are so short you could hide them in the legs of your oilpants.

From observation of Roaring Bessie I have decided that a better sea-boat cannot be built. If I were going on a deep-water voyage in a small yacht I would select Roaring Bessie without thinking of any other type. Her motion in a short sea is like a rocking chair. She never



Construction and Arrangement Plans of Block Island Boat Lena M

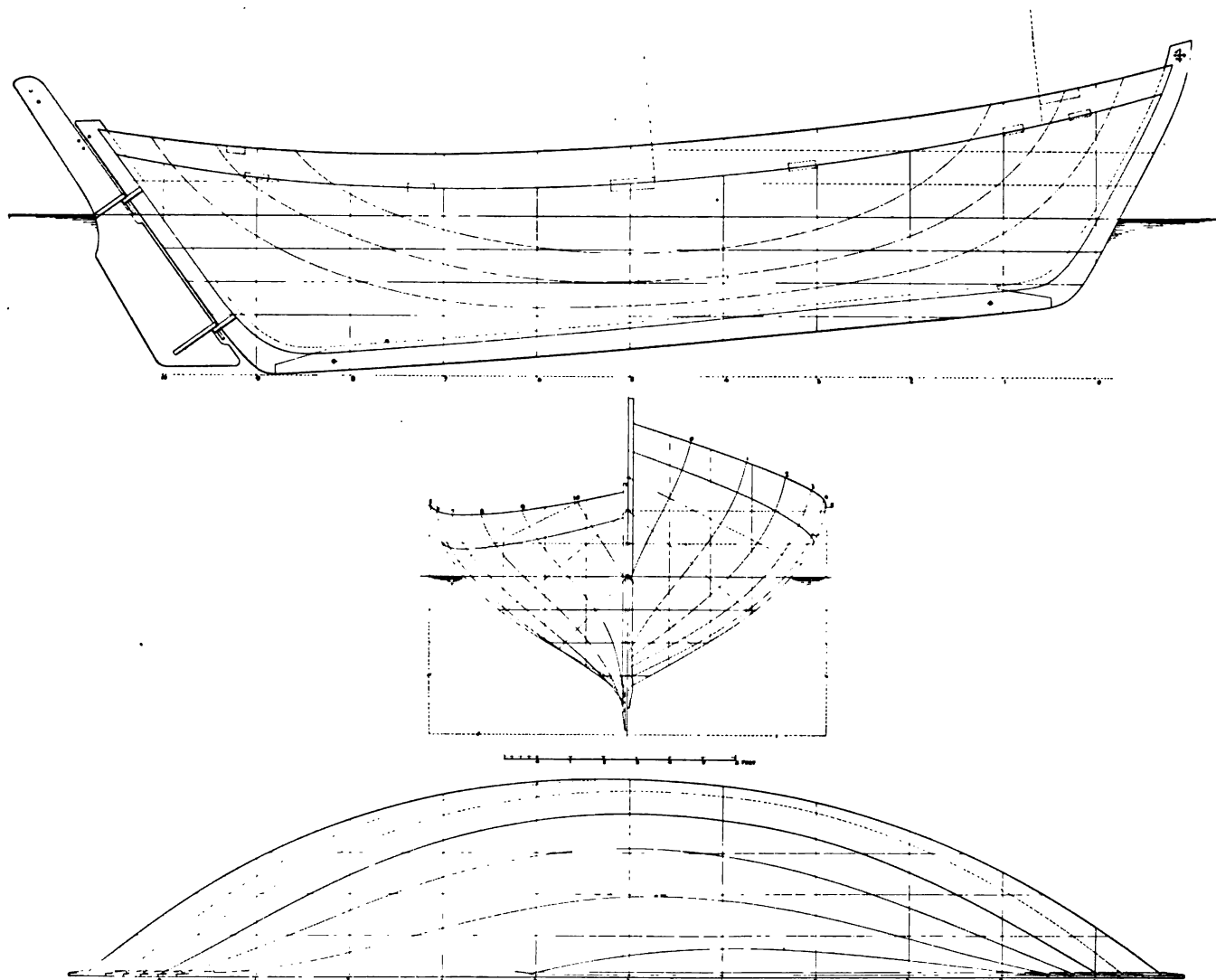
smashes into a head sea, but rides it like a duck, and when on the wind she is always inching to windward, no matter how hard it blows. Her sails are so easily reefed that one man can handle her without undue labor, while two is an ideal crew. She steers perfectly and is one of the few boats I have seen that will steer herself indefinitely. I have no doubt that place her in steady trade winds and she would repeat the performance of continuous self-steering for days attributed by the late Captain Slocum to the yawl *Spray*, on his single-handed voyage around the world.

In order to make a test of the boat on this point, I took her out of Marblehead one rough morning in September, under single reefs. The wind was Northeast, and an East-going tide made a strong sea. On leaving the harbor I put the boat as close to the wind as she would lie, set the tiller between two pins on the pin-rack, and conned the course by compass. She passed through some hard puffs, and through a soft spot caused by the lee of an island, without veering a quarter point either way from her course. When well outside, where the wind settled down to a strong, steady blow, she bowled along beautifully, climbing the short, hard seas and going down into their trough without varying her course more than 3 degrees either way. We kept her on one tack thus for 20 minutes, with the same result, be-

fore coming about for the land. On the run in, with the wind abeam, it was more difficult to get the exact trim on the sails to help her to hold her course, but by taking in a few inches on the foresail, and a little less on the main, we got her balanced nicely, and she repeated her performance. In the smooth water of Salem Bay she did the same thing. This satisfied me that by reason of her perfectly proportioned hull and rig, *Roaring Bessie* would sail herself for hours as easily and straight as the *Spray* ever did.

It is not my purpose to follow here the season spent by Mr. Erismann sailing in his unique yacht. He took her to the Maine coast—where they called her a pinkie—and back to Boston, and found her an ideal cruiser. She was not fast, compared with modern boats having outside ballast; but in the give and take of an ocean passage I would back her against the best of her length. Nor was she without speed, either, under some conditions, for on her last run of the season, in October, from Marblehead to Boston, in a strong Nor'wester—a beam wind—she logged 7.36 nautical miles in an hour.

A striking picture of *Roaring Bessie* under sail, with Mr. Erismann near the lee rail, formed the frontispiece of *THE RUDDER* for November, 1911. The lines here-with are those of *Lena M*, from which *Roaring Bessie* was built.



Lines of Block Island Boat *Lena M*

A MISSIONARY SCHOONER

C. D. Mower



THE schooner George B. Cluett is a vessel of unusual interest as she is a modern type of auxiliary working schooner designed for a special purpose and to meet very unusual requirements.

The principal service for which she was built was to carry stores, hospital supplies and coal from Boston to the hospital stations on the Labrador coast operated by the Labrador Medical Mission under the direction of Dr. Wilfred T. Grenfell.

It was required that she should have good cargo-carrying capacity and at the same time be fast under sail and a good, able sea-boat. When not used for carrying cargo she was to be chartered for sporting or scientific expeditions in the far North, so that it was required that she should have suitable cabin accommodations for this service, and as Dr. Grenfell has the love of a true seaman for a handsome vessel it was a part of the designer's task to make her a vessel that would attract attention by having a good sheer, a well-turned hull, and a general look of smartness.

As a solution of their problem the designers, Bowes & Mower, of Philadelphia, turned out a vessel that is a combination of working schooner, fisherman and sea-going yacht, and she has proven herself most satisfactory in every respect.

She was launched on July 1, 1911, and after three weeks of rigging and fitting out she took on a cargo of 100 tons of coal and a great quantity of general stores, and sailed from New York for Boston, where she was to take on additional cargo before leaving for St. Anthony, Newfoundland. After discharging her cargo she made a two-months' yachting cruise under charter, going the entire length of the Labrador coast. In the Fall she returned to Boston to take the Winter supplies for the hospitals to Labrador and made a record passage to St. Anthony. Returning to St. Johns she was chartered to carry a cargo of salt fish to Brazil, so that she has been in constant service and has had the chance to find and prove herself in all kinds of weather.

Before going into the story of her construction, it is interesting to give a little account of how she came to be built for the Association.

In a published letter regarding the work of the Mission, Dr. Grenfell expressed the need of a new schooner to take the place of the Lorna Doone, a small Gloucester fisherman, which was then being used to carry supplies from Boston to Labrador, as she was not large enough to do the work required of her. A ready response came from George B. Cluett, Esq., of Troy, N. Y., and a life member of the Grenfell Association of America. Mr. Cluett offered to furnish all the money necessary to



The Missionary Schooner George B. Cluett Proceeding Up the East River, New York, Under Her Own Power

build and equip a new vessel that should in every way meet the requirements and to make her a personal gift to Dr. Grenfell.

In selecting a designer for the new vessel Dr. Grenfell decided to place the order with Messrs. Bowes & Mower, on account of the great success of the auxiliary ketch Yale, designed by Mr. C. D. Mower and presented to the Association the preceding year through the efforts of Mr. John T. Rowland, Yale 1911.

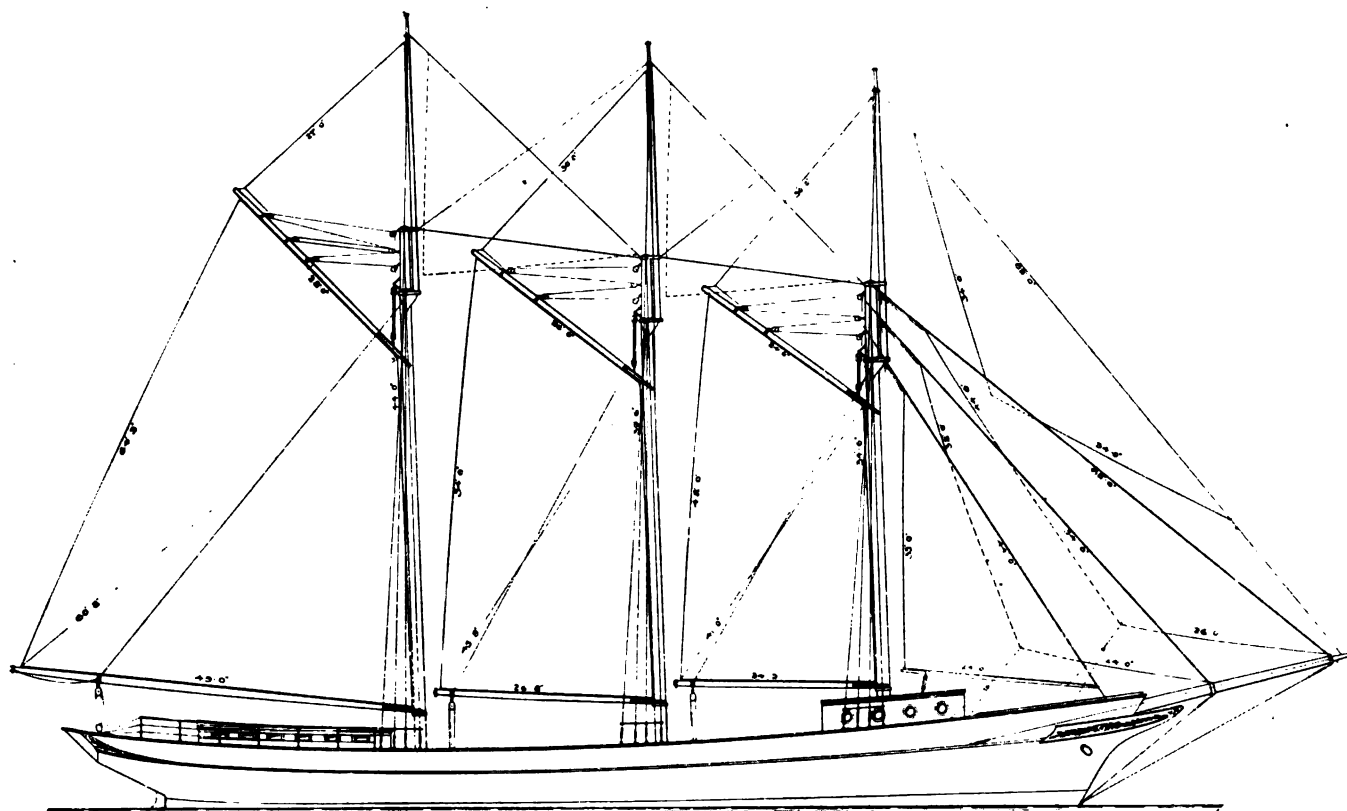
After a great deal of time and thought had been spent on the design, the plans were approved and the contract for building the vessel was placed with Messrs. A. C. Brown & Sons, of Tottenville, Staten Island, N. Y.

The plans show a vessel 135 feet over all, 115 feet water-line, 26 feet moulded breadth and 12 feet moulded depth. The hull shows a strong sweeping sheer with high freeboard forward and a graceful turn up aft. The bow shows a clipper stem the form and detail of which have been carefully worked out to give the strength and character that is generally found wanting in the American-built yacht or coaster. The after overhang is short and at the same time has been worked in so that it gives a good shape to the boat and an appearance that carries out the proportions and balances well with the forward overhang. The keel line is straight, to facilitate docking, except that the forefoot is well cut away. While this makes the vessel handle well, it is interesting to note that it was one of the Doctor's requirements, as he wanted a boat that would "slide up" if she happened to strike one of the many uncharted rocks of the Labrador coast. As a further protection against this contingency she was given a 3-inch oak shoe outside of her main keel, and this was shod with a heavy steel plate extending from her bobstay plate to the heel of her rudder-post. The midship section shows a fair amount of deadrise with

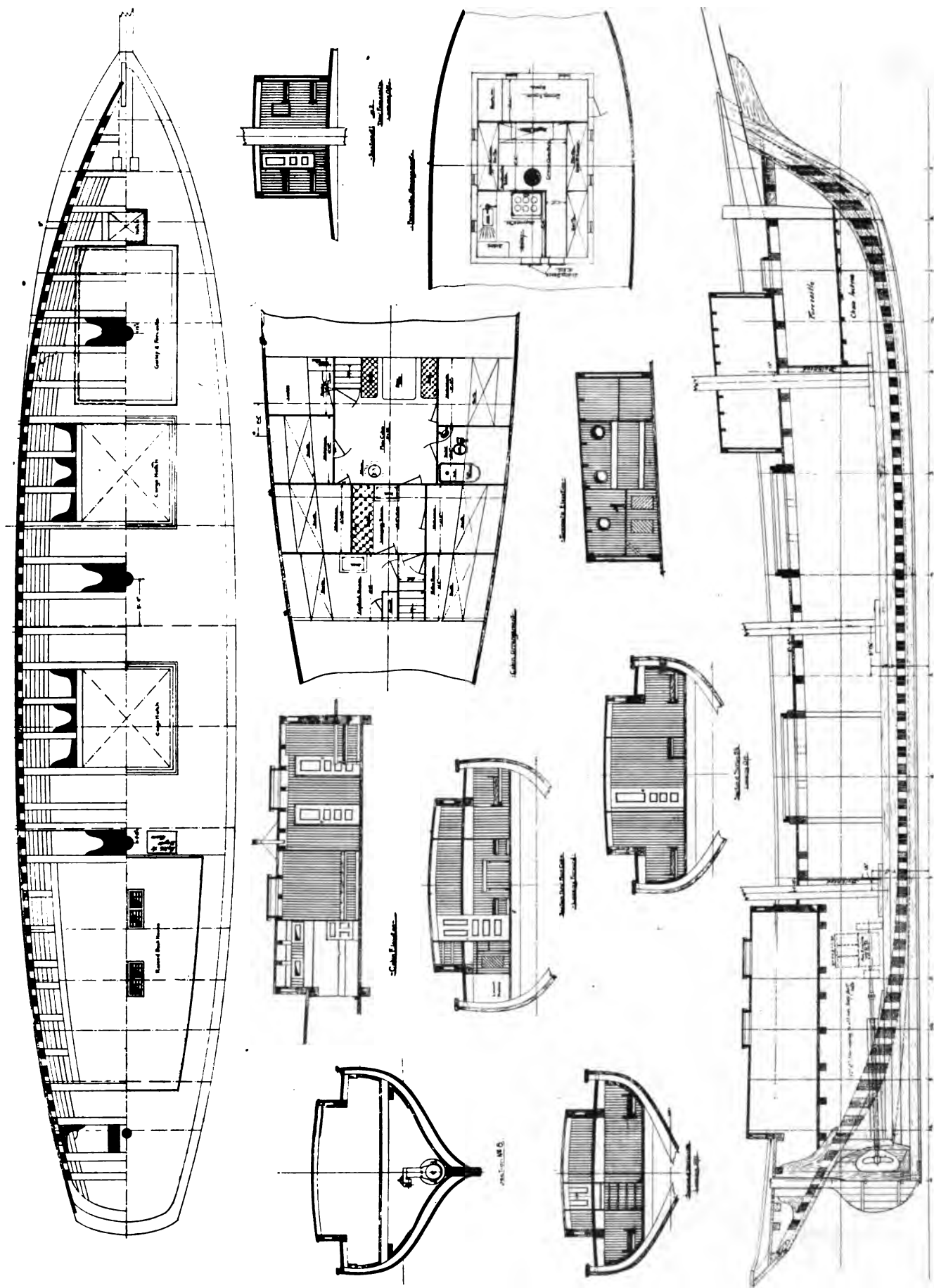
a good floor, a firm turn of bilge rounding up into a slightly tumbled home topside. A greater amount of deadrise was not given, as it was desired to have a vessel that could be taken to sea with a very small amount of ballast, and cargo capacity was also important. She has a flare to her forward sections that is unusual in a working schooner and the water-lines show a fine entrance and a very clean run aft.

The construction is of special interest to the yachtsman on account of the size and weight of scantlings and material. While in a general way she is built in accordance with the requirements of the American Bureau of Shipping, there are many details where the designers have used special construction, designed to give greater strength than is ordinarily obtained. She is unquestionably one of the strongest and best built schooners of her size afloat to-day and is a great credit to her designers and builders.

The keel is a beautiful stick of native New Jersey white oak 12 by 12 inches, with only one scarf in the entire length. The stem is of white oak sided 12 inches and backed up by knees and apron pieces in a way to give great strength. The stern construction was carefully designed to get unusual strength around the propeller opening and the stern-post, body-post and deadwood are all of oak very thoroughly bolted and tied together. Her frames are of oak spaced 24 inches center to center and are double with a space of 1½ inch between the two parts of the frame. This space is left to allow salting to prevent decay. The frames are moulded 12 inches over the keel, 6½ inches at the heads, and are sided 6 inches, so that there is only a space of 9 inches between frames. This space, like the air space in the frame itself, is filled with coarse rock salt in the topsides of the vessel to prevent rotting and decay.



Sail Plan of the One-Hundred-and-Thirty-Five-Foot Auxiliary Schooner George B. Cluett.
Designed by Messrs. Bowes & Mower, Philadelphia, Pa.



Construction and Accommodation Plans of Auxiliary Schooner

THE RUDDER

Throughout the length of the vessel one-half of the frame is carried up to form the bulwark stanchion.

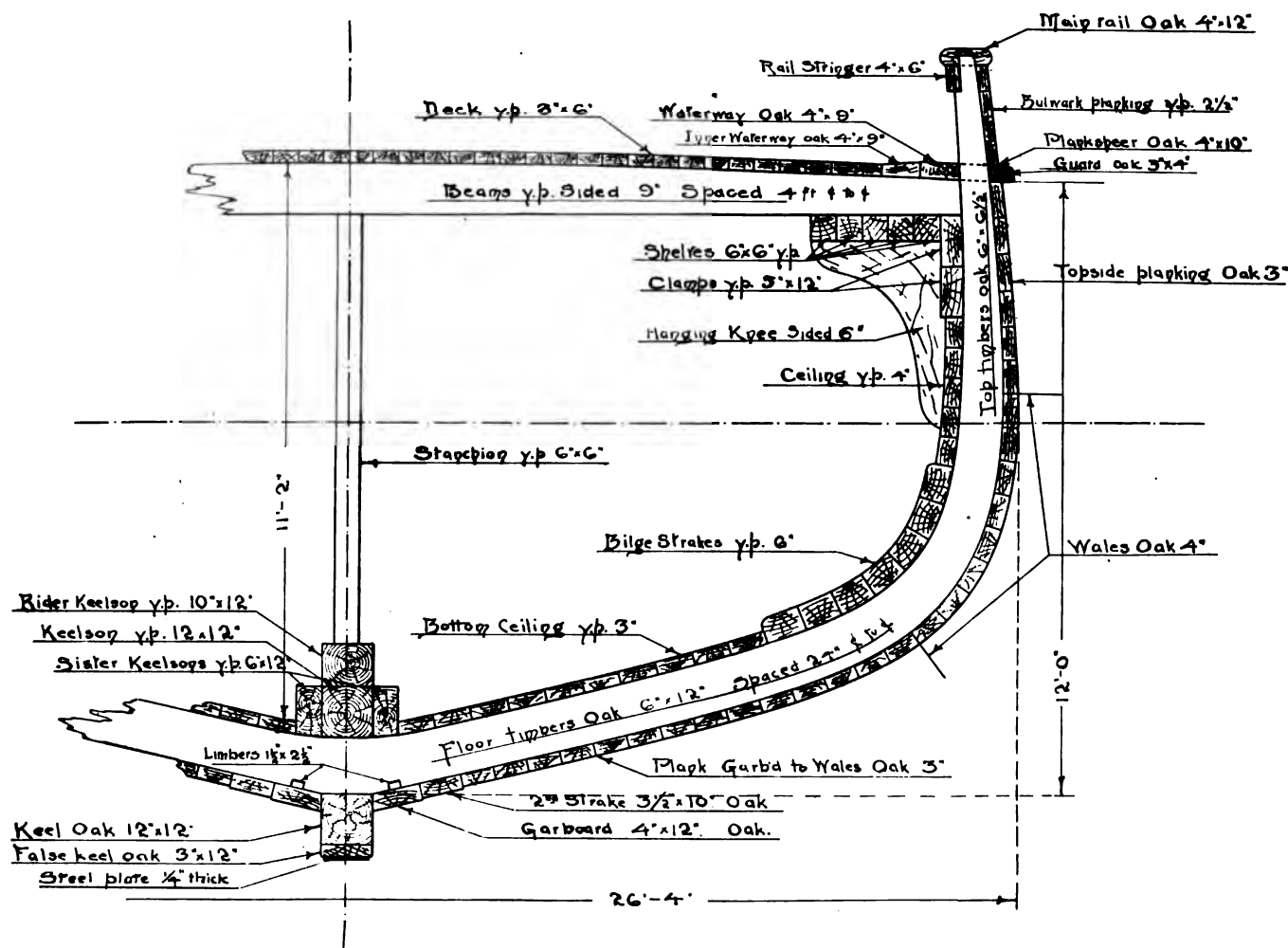
The keelson construction shows a 12 by 12-inch yellow pine keelson with a rider keelson the same size and two sister keelsons 6 by 12 inches. This is all thoroughly bolted through the frames to the keel and forms a backbone of great structural strength.

Before the outside planking is put on the frames are "dubbed off" fair on the inside and the ceiling is put in. This is of long leaf yellow pine 3 inches thick in the flat of the bottom and on the inner topsides. In the turn of the bilge there are seven "bilge strakes" which are 6 inches in thickness to give greater strength to the turn of the bilge. This ceiling is all "worked" with heavy galvanized spikes, that is, it is held at each frame by two spikes, and after the outer plank is on two locust treenails are placed to give the two remaining fastenings at each frame crossing. The treenails are wooden dowels of straight-grained locust, on this vessel $1\frac{1}{8}$ inch in diameter, driven from the outside through a hole bored so as to give a tight fit. The ends are cut flush both inside and out, then split by driving a steel wedge into the end, and then a locust wedge is driven at right angles to the grain of the planking to spread the end of the treenail so that it holds the plank and ceiling as firmly to the frame as a through rivet.

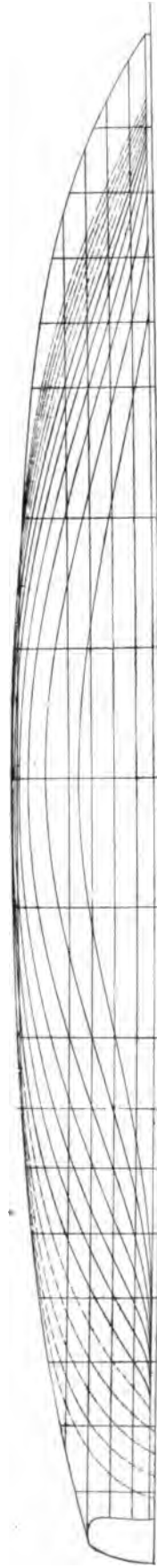
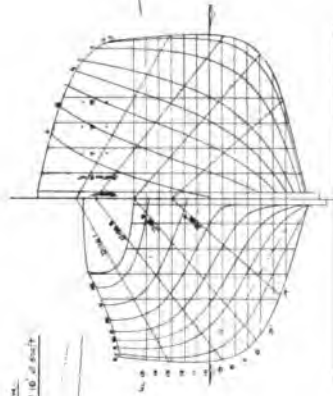
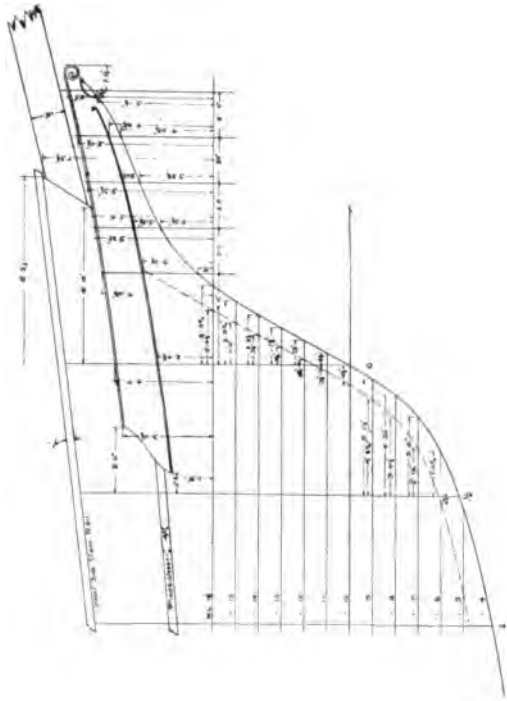
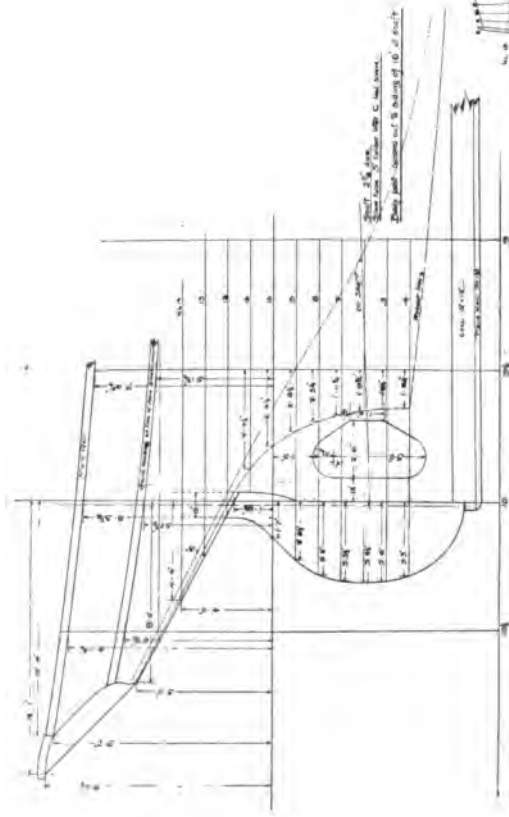
After the inside of the hull is ceiled up the frames are dubbed off fair on the outside with adzes and the outside planking is commenced. On this vessel selected

white oak was used exclusively for planking and some of the planks ran as long as 60 feet of the finest Ohio white oak. The garboards go on first, and they are 4 inches thick and about 12 inches wide. They are bolted to the frames and then edge-bolted to the keel with long drift bolts so that they give additional strength to the backbone construction. The planks next the garboards are $3\frac{1}{2}$ inches and then the flat of the bottom is planked with 3-inch oak. At the turn of the bilge the planking is increased to $3\frac{1}{2}$ and 4 inches and on the topsides it is again reduced to 3 inches. These different thicknesses are tapered into one another so that no unevenness or unfairness is shown on the outside of the hull after she is smoothed off. The planks are worked with hand-forged galvanized spikes and then fastened off with the treenails. While the planking is going on another gang of men are at work getting the shelf in place to carry the deck beams. This shelf consists of five courses of yellow pine stringers each 6 by 6 inches, sprung into place against the inner side of the frames and all securely bolted together and to the frames. The deck beams are dropped into place and rest on the shelf at either end and are supported in the middle by a 6 by 6-inch stanchion standing on the rider keelson. After all are in place 6-inch hackmatack hanging knees are fitted under the shelf at each beam and carefully fitted to the inside of the ceiling and well bolted into place.

The decks are of selected 3-inch yellow pine with oak plank-sheers, or waterways, fitted around the timber



Section of One-Hundred-and-Thirty-Five-Foot Schooner, with Scantling Details



Lines of One-Hundred-and-Thirty-Five-Foot Schooner George B. Cluett

heads forming the rail stanchions. In this vessel there is a break in the deck just aft of the mizzenmast and it is raised to the height of the main rail to give more room for the cabin accommodations.

The bulwarks are planked up on the outside with yellow pine, with the inside, except at the bow, left open with the stanchions exposed. The main rail is of white oak 3 by 12 inches let down over the timber heads.

The living quarters for officers and guests are aft under a trunk cabin on the raised poop deck, while the galley and forecabin are in a deckhouse forward through which the foremast is stepped. In this deckhouse there is also room for a donkey engine for handling the windlass and hoisting sails. The main engine is aft in the hold under the cabin floor and is reached by a hatch in the deck just forward of the break.

The sail plan shows the regular fore-and-aft schooner rig with three masts and pole, or "spike," bowsprit. The sail plan is fairly small as the vessel is designed for use on a coast where heavy winds prevail and she is handled by a small crew, so that she was under, rather than over-canvased. With her forefoot cut away it was possible to somewhat reduce her headsails so that her fore and main masts were shortened to give a rake to her spring stays and a little of the yacht look to her sail plan. Her lower masts are of Oregon pine, with bowsprit of yellow pine and top masts, booms and gaffs of spruce. All the details of rigging and ironwork were specially worked out by the designers to give a great factor of safety in strength without making the rigging clumsy or cumbersome. The details of rigging and ironwork show what would be good practice for a yacht designed for ocean cruising or offshore racing.

Her sails were made by Messrs. Wilson & Silsby, of Boston, and were made of heavy cotton duck, hand-sewn, with the exception of her topsails and light sails.

For auxiliary power a kerosene oil engine was required, and after due consideration the designers selected the Wolverine as the engine best suited to their requirements. The three-cylinder, 75-h.p. engine was used, as the engine was intended only for use in calms and in making harbors through the narrow fiords on the coast, and a speed of 5 miles per hour under favorable conditions was all that was required. The engine is installed in the after hold, under the floor of the main cabin, and separated by a bulkhead from the cargo hold. The fuel tanks are located aft of the engine and consist of four galvanized cylindrical tanks with a capacity of 200 gallons each. Two of these tanks are used for kerosene and two for gasoline, which is used for starting and where the engine is to be run for a short time only in making a harbor. A reserve supply of kerosene is carried in barrels in the hold or on deck, but it was considered advisable to have the engine gasoline supply in the tanks, and on this account two of the tanks were used for gasoline, the kerosene tanks being refilled from the extra supply when necessary.

Ventilation in the engine room is obtained by two uptakes through the forward end of the main cabin with cowl hoods on deck.

On the initial trip of the boat from New York to Boston the entire run was made under power in calms or light head-winds and an average speed of $4\frac{1}{2}$ to 5 miles was maintained with the vessel loaded with 100 tons of coal and close to another 100 tons of general cargo. The engine has been used a great deal and on one occasion saved the vessel from being driven ashore in a

heavy wind, so that the value of auxiliary power has been well demonstrated. The engine was furnished and installed by the Wolverine Motor Company under the direction of Mr. Clark, of that company.

The donkey engine forward is a single-cylinder Fairbanks-Morse engine of 6-h.p., furnished and installed by the Mianus Motor Company. The windlass is operated by a messenger chain driven from a sprocket on the shaft, which is chain driven from the engine. This shaft runs across the forward end of the deckhouse with a winch head on either side, which is used for handling cargo and hoisting sail.

The cabins aft are arranged to give five single staterooms, one double stateroom, one bathroom, chart room, main cabin and a butler's pantry. As the plans show, the main cabin can be reached by the forward companionway leading out on deck, or from the quarter-deck by passing through the chart room. The pantry is at the foot of the companionway steps for convenience in serving. The bathroom and three staterooms open from the main cabin. The double stateroom aft was intended to be used as the captain's room and the small room on the starboard side aft for the mate. The captain's room has a door opening into the chart room and also a door into the passage, so that he can get on deck in a hurry if necessary without going through the chart room.

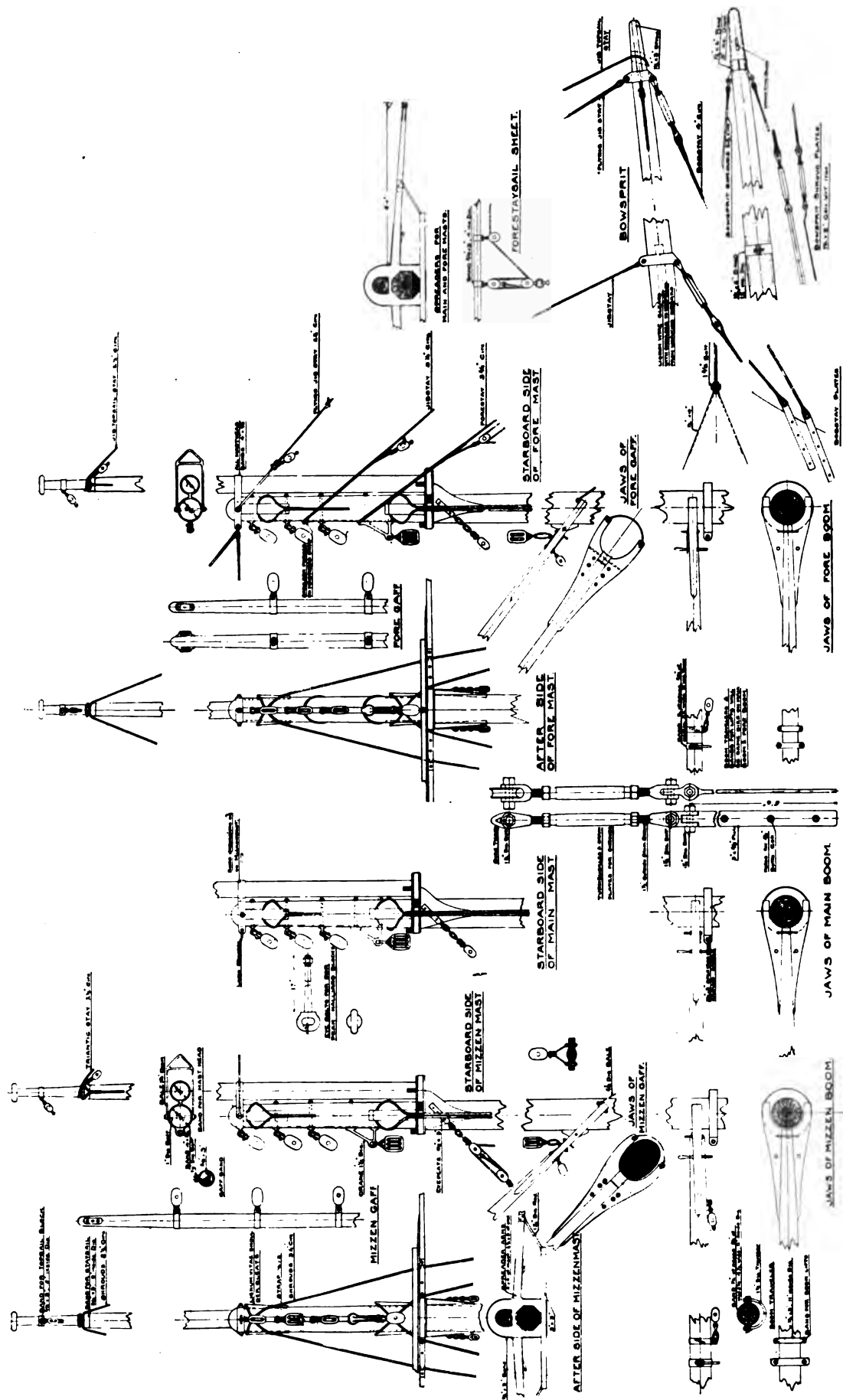
The cabins are finished in white paint throughout and the main cabin is attractively furnished with oak dining table and chairs and with wicker arm-chairs. A built-in seat on either side of the table gives a space under each that is utilized for linen lockers. The cabin is heated by a small coal stove which serves to heat the staterooms all that is necessary. Each stateroom is furnished with a "stateroom lavatory" with folding basin, and there is space under the berths for a small steamer trunk.

The forecabin has five berths to accommodate cook and four men, one of whom acted as engineer. The captain and mate aft make a total of seven men all told for crew. A lower forecabin below deck forward was provided in case extra men were ever carried and to give a space for ship's stores, chain lockers, etc. Her anchors and ground tackle were unusually heavy, as she carried two stockless anchors of 1,500 lb each and the regulation lengths of $1\frac{1}{4}$ -inch stud link chain. The stockless anchors are housed in the hawse-pipes. A stream anchor of 500 lb and a kedge of 250 lb are also carried.

As two boats were to be carried the davits were placed amidships, so that the yawl boat is carried to port and an "Atlantic" 25-foot Gurnet power dory on the starboard side.

The construction and fitting out of the vessel was done under the close personal supervision of the designers, and the series of photographs showing the different stages of construction are of unusual interest, as it is very seldom that photographs are taken which so well illustrate the manner in which a wooden vessel is built. The photographs were all taken personally by the writer as a part of the office record of the job, and it is a great regret that no pictures of the schooner underway either under sail or power were ever obtained. It is also interesting to note that this is the only wooden schooner of large size that has been built in or near New York City for a considerable number of years.

The Cluett was launched on July 1st and was christened by Miss Cluett, the daughter of the donor and in whose honor the vessel is named. Mr. Cluett and his



Rigging Details of One-Hundred-and-Thirty-Five-Foot Auxiliary Schooner

party came down from Troy for the launching, and included in their number was a clergyman who offered a prayer for the vessel just before she started down the ways. The launching was of the old-fashioned kind with the launching party on board, and she was christened by breaking a bottle of spring water against her bitt head. When launched she carried the national ensign at the mizzen, the British jack at the fore, and the Labrador Medical Mission and George B. Cluett flags on one hoist on the main with a string of code flags from stem to stern.

While the splendid work that Dr. Grenfell is doing is generally well known by those who have read his books, or better still have had the good fortune to meet him and hear him talk of the work, a brief outline of his work may be of interest in connection with this story of the Cluett.

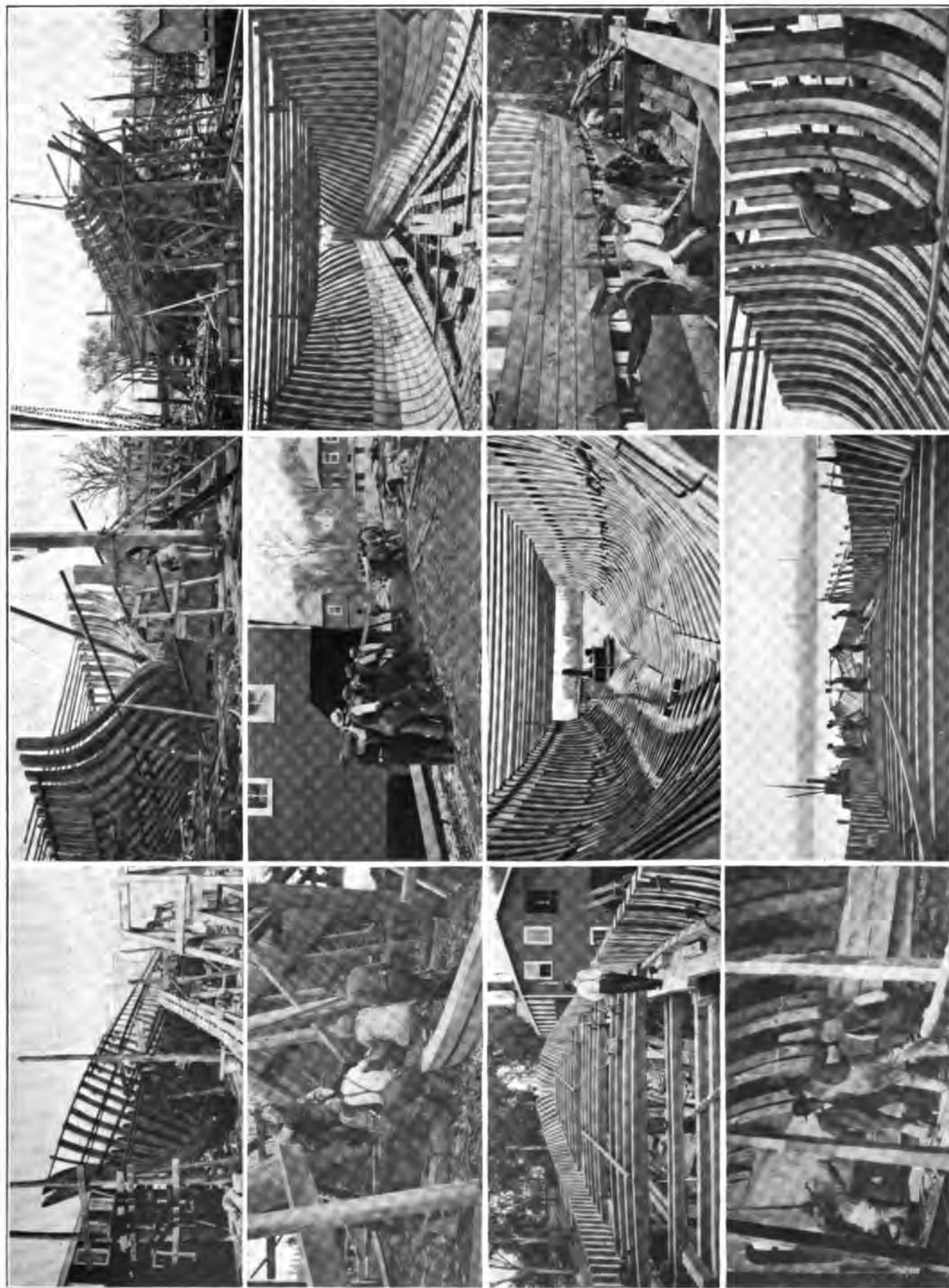
Dr. Wilfred T. Grenfell is an Englishman, an Oxford graduate. He first became interested in the work of the Royal National Mission to Deep-Sea Fishermen among the fishermen of the North Sea. The work was medical as well as religious missionary work, and did much to better the condition of the men of the North Sea fishing fleets. In 1892 he was sent by the Mission to Labrador to investigate conditions there among the fishermen in the hospital ship *Albert*, a ketch of about 150 tons. After a season among the fishermen, she returned to England, and in the following Spring came back to Labrador carrying equipment for two small hospitals.

From the beginning the work has grown until now the Society has four well-equipped hospitals at different points along the coast, cooperative stores have been started, schools established, sawmills built to give employment during the Winter, and the people taught to take care of themselves. An inestimable amount of medical work has been done among the sick, the poor have been clothed, and the starving fed. While the entire work is built upon a foundation of the truest Christianity, it is interesting to know that no man has ever been engaged by the Deep-Sea Mission in the capacity of priest or clergyman. Dr. Grenfell himself is a man of indomitable courage and determination. He is master of his hospital ship *Strathcona* simply because he could not get a captain who would drive her as hard in all weather as he would have her driven, and the worst gale will not stop him when he decides to go.

Dr. Grenfell is an M.D., not a D.D., and he and his helpers are the only physicians ever seen on the Labrador coast. Of his stories, some deal with his work for the physical help of his people and some with their spiritual well-being, but through all there runs the deep note of human sympathy that has led this remarkable man to give up the comforts of life that he might have and devote his life to a work that stands for so much more to him. His lifework is its own reward and is a proof that even in these days there are still men to whom money is not everything and who are willing to devote their life to helping others in the great cause of humanity.



Spring!



Building the Missionary Schooner George B. Cluett. Designed by Messrs. Bowes & Mower, Philadelphia, Pa

GENERAL MANAGEMENT OF GAS ENGINES AND THEIR TROUBLES

A. L. Brennan, Jr.

PART I

A PRACTICAL working knowledge of gas engines is the first requirement for good steady results, and in order to become conversant with the many whims of this machine an exhaustive study plays a very important part. Almost any one can grasp the fundamental points of an explosive engine well enough in a short time so that he may be able to operate the machine fairly well, provided nothing out of the ordinary happens, but when the inexperienced operator is confronted with an elusive short-circuit, or a faulty mixture, the chances are that he will be pretty much at sea, and there is where practical experience and a working knowledge are the only factors which will be of any material assistance in bringing about a positive remedy. A large proportion of the green handlers of engines depend largely upon the starting handle when their machine balks, but find, much to their dismay, that repeated cranking proves of no avail. This, of course, is readily apparent, for no machine can run when there are any of its auxiliary parts at fault, which usually is the case of the gas engine's failure to continue its cycles with regularity. With a little initiation into the working principles of a gas engine, the novice can rapidly learn how to detect the first and foremost troubles, due, in the majority of cases, to insufficient or oversufficient gasolene, or else to a poor spark in the combustion chamber. In locating troubles of this kind, practice is a prime requisite, and usually the man who goes at things slowly and deliberately, is invariably rewarded by finding that which he is seeking, and, in the case of the gas engine, in a shorter period of time, and with much less exertion, than the man who jumps at conclusions.

Gas engines, to a certain extent, come very near to perpetual motion; in fact, they approach this still hidden law in mechanics nearer than any other known generating force, due principally to the fact that they are a self-contained unit of power and, bearing this truth in mind, it is not at all surprising that a very slight fault will cause them to "shut down" partially or altogether.

Petroleum, and nearly all its by-products, especially naphtha, gasolene, benzine, and the other highly inflammable oils, are extremely dangerous, and, in order to preserve safety, the greatest care must always be exercised in their handling and storing. Many possess the mistaken idea that, due to the fact that gasolene and petroleum are very volatile—that is, prone to evaporate very rapidly and thereby form gas—they necessarily rise; but this fact is true only to a certain extent, and many have found, through serious loss or accident, that the most dangerous vapors descend and condense in low places. Hence it is of the utmost importance that particular attention be paid to this small but very serious consider-

ation, and too much stress cannot be laid on the necessity of keeping all such highly volatile liquids in non-leaking, tight receptacles, in order to prevent their evaporation and the consequent accumulation of inflammable vapors which when ignited, spread at an alarming rate, and usually to places where it is extremely difficult to extinguish the flames before much damage has been done. For nearly all ordinary fires, water is very effective, but for oil fires it is nearly always worse than nothing. It absolutely fails to put out the fire and nearly always spreads the burning oil, thereby rendering the fire even more deadly. The several liquid fire extinguishers which are on the market at present are undoubtedly very good, and will quickly and effectually extinguish a gasolene or oil fire at short notice, provided the fire has not got too much headway, and is fought from the source of the flames. The mistake many make in fighting a fire of this kind is to pump the liquid into the flames, which is nothing short of insanity, for fighting fires with chemicals is an entirely different process from that commonly employed when using water. Water, as we all know, when applied to a fire in quantities sufficient to extinguish it, drenches the burning parts and renders them non-combustible, which is quite a departure from the principle used when chemicals are the fire-destroying agent, for in the latter case, the chemicals coming in contact with the heat, generate an imperious gas which settles about the source of the fire and prevents any admission of oxygen to the seat of the flames which are at once smothered. Sand is another excellent medium to use on fires of this nature. Fires can invariably be extinguished, if they are not allowed to gain too much of a start, but it is in every way imperative that every measure be taken to frustrate them by preventing any accumulation of oil, grease, or waste in places where it could do any damage, if it should ignite.

Special consideration should always be given leaks, and every means should be taken to stop in a permanent way even a very small aperture of this nature. Of course, a gasolene leak is about the most dangerous, and temporary repairs should be made upon discovery by using soap, or strips of cloth dipped in shellac, which are usually the only effective means at hand, but they should only be employed until an opportunity is offered for a permanent repair. There are a wide range of causes for fires resulting from leaks, but as a rule they can all be attributed to carelessness in using naked flame illuminating devices, such as matches, the eternal cigarette, or hot pipes. Still another cause, and one which frequently results in serious loss, is due to backfiring through the intake manifold, which often ignites the

gasolene in or near the carbureter. Backfiring of this nature is invariably due to an extremely thin mixture which in turn can be traced to several causes, such as gasolene supply too low, tank air-bound, dirt or water in gasolene tank, piping or carbureter—all of which tend to cut off the gasolene and render the mixture so thin that it burns very slowly and ignites the fresh charges of gas as they enter through the inlet valve, which, consequently in turn kicks back through the intake pipes. This difficulty will sometimes be experienced when adjusting the carbureter by cutting down the gasolene too far, or else by allowing too little tension on the air valve which reduces the pulling power, or vacuum on the gasolene.

Similar to all other mechanical appliances, internal-combustion engines must necessarily be in good condition to develop their highest efficiency, and therefore, it is absolutely essential that particular attention be paid to the various departments with this end in view.

Before starting, make sure that the clutch is neutral, and if you have any doubt about loose or defective parts, adjust them at once, or the consequences may be very serious. Make sure that there is a sufficient amount of gasolene and lubricants on hand for the contemplated run; that the batteries are strong, and the water supply ample. Now, set the lever on the spark control quadrant at the extreme retard position, so as to eliminate any possibility of kicking-back, which not only causes considerable damage to the engine, but may break your arm as well. Open the throttle wide to insure plenty of gas when the engine is running slow, and low vacuum pressure prevails.

When *priming*—that is, injecting a small amount of gasolene into each cylinder to cause several strong impulses in order that the engine may pick up its regular cycles more rapidly—it is advisable always to be careful. Then put the switch on the battery side and crank the engine, and after the engine starts, throw the switch to the magneto position if the engine is equipped with a mechanical generator. Just as soon as the engine runs strong and regularly, advance the spark, and retard the gas which is absolutely necessary to insure cool and economical running. Also look at the lubricators and cooling system, as there may be something slightly at fault which can be quickly remedied by a slight adjustment, and it will be found that a trouble remedied in its infancy will save much time and expense. It is usually necessary to give the engine a little more gas when engaging the clutch, and then slow the engine down a little, when the engine has picked up. But the rule to make is to use as little gas as possible, first, with the needle valve, to insure a clear combustion and, second, with the throttle, to retard the volume.

Since a gas engine relies entirely upon its compression for the power developed, it is well to say a few words in regard to the several features which control this all-important consideration. The parts involved are: the cylinder, piston, valve cages, and valves, spark plugs, and other ignition devices, cylinder head, gaskets, relief valves, and pet-cocks. Correctly designed and constructed engines seldom offer any serious cylinder troubles, provided a little care and attention is paid them for piston and cylinder surfaces that are lubricated with oils of proper flash-point, viscosity, and quantity soon become coated with a hard glaze which reduces wear and friction to practically a minimum. Although this surface is as hard as glass, still it is easily ruined, and so it is not a bad idea to use care when removing or re-

placing the pistons in the cylinders, and emery cloth or other abrasives should never be employed to remove the carbon. Kerosene is undoubtedly the best medium to use in softening carbon deposits and they may then be removed easily with a dull instrument without injury to the cylinder surfaces in any way. Piston rings are very prone to seize when too much or inferior oils are used, and this results in defective compression. Sometimes it is a difficult matter to free a stuck ring, and if possible, one should soak the whole piston in a tin of kerosene for a few hours, and then pound the rings all around with a piece of wood or lead, but never with a hammer as the rings, being made of cast iron, are extremely brittle and liable to break or be otherwise marred.

Removing piston rings is another trick that requires considerable practice, although there are several methods of doing it which are all good, of which I have always found the least laborious to be that of procuring four strips of stout tin and then employ a screw-driver or a pair of ring tongs which resemble a pair of long pliers, only differing in the fact that they have chisel-shaped points which open instead of close. Insert these points carefully between the two ends of a ring and then compress the handles, which will cause the ring to open sufficiently to allow a piece of the tin, which should be inserted and worked around a little until room is made for the next piece, and so on, until the four are in the points and lying parallel with the piston 90° apart. The ring will now be elevated above the others and can be readily slipped off. It is a good scheme to clamp the piston securely in a vise, thereby bringing the jaws hard against the connecting-rod, and then remove the farthest ring first in order to eliminate the possibility of its slipping into one of the other grooves. The rings can be easily replaced by the same means.

On some engines, *valves* are a continual source of annoyance, while on duplicate engines, or engines of another make, they may not give any trouble at all. Exhaust valves invariably cause more delay than the inlet valves, on account of the high temperatures in which they work, especially when the engine is running on a retarded spark and open throttle. Exhaust valves require to be ground in at frequent intervals, and grinding valves requires a certain amount of practice, still the process is extremely simple. Release the valve from its spring and then fill the valve chamber with waste, then place a small amount of one of the prepared abrasives, or a little oil and emery on the valve seat. Now, by means of a brace or screw-driver, rotate the valve upon its seat, first one way and then the other, which will soon impart two tightly fitting surfaces, but never grind a valve in one way only, as it will not prove satisfactory, and will probably leave several deep scratches. Some consider ground glass superior to emery to use until a good fit is had, and then finish by using brick dust or pumice powder to insure a smooth hard surface which will not become pitted in a short time. After grinding, remove waste and make sure that no particles of the abrasives have entered the cylinder, or any of the moving parts, for they are liable to cause great trouble when least expected; and it is another important thing to remember, when grinding valves, to lift the valve from its seat before changing to revolve in the opposite direction. Inlet valves are taken care of in the same manner but do not require so much attention. Much valve trouble can be avoided by frequently injecting a small amount of kerosene into each cylinder. This should be done when the engine is nearly cold, for if the oil was poured

into a hot cylinder, it would evaporate before it could soak into and free the carbon deposits which would later be blown out by the exhaust. After injecting the kerosene, crank the engine by hand for ten or fifteen turns, and then allow it to stand as long as possible, for by employing this method, it will be found that much will be done to preserve high compression and easy running.

Defective compression is easily discovered and usually attributable to either the valves or pistons. The simple test for loss of compression is made by cranking the engine with the pet-cocks and other relief valves closed, and if but little resistance is encountered on the compression stroke, it is very evident that the gas is escaping somewhere, probably in the valves, and you may find that the valve or valves which are giving trouble are hung up, due to being clogged by the accumulation of charred oil and dirt, which makes the valve movement very sluggish, or prevents it from seating. This can be easily found out by manipulating the valve with a lever, or by hand if the spring is not too strong. Worn and badly pitted valves are only made gas-tight by continued grinding, or else by replacing them. However, don't forget that the new valve must be ground to fit the old seat. Most exhaust valves are fitted with a compression nut which increases the tension on the spring, and sometimes these nuts become slack, or the springs lose a large proportion of their elasticity through overheating, so that in order to overcome this trouble it is necessary to increase the tension on the spring by either replacing it, taking up on the compression nut, or by placing a washer inside the spring. Sometimes when an engine becomes overheated, the valve stems expand to such an extent that there is not enough clearance on the ends to allow the valves to set correctly. Other valve troubles are broken valves or bent valve spindles, but it is seldom one has to contend with these. Half-time shafts are now made with the cams in the same casting and so it is impossible for a cam to slip or its key become loose, and throw that valve out of time as in many of the former engines.

All *bearings*, and especially those on the crankshaft and connecting-rods, should be kept free from lost motion, as play of this kind not only causes a heavy knock or thump in the engine, but induces severe strains on the other journals which quickly plays havoc with easy manipulation, and quiet, smooth operation. The binding nuts or all bearings should be set up with a hammer, that is, a hammer should be used on the wrench or spanner used to set the nuts up and suitable locknuts or split pins to prevent the nuts from working loose should be employed. Bearings which are too tight are easily remedied by placing a thin copper or brass shim between their connecting sides, and slack bearings will have to be filed to bring the bearing surfaces nearer together. Care must be taken when filing a box not to allow the file to cut away more on the thin parts, which point is easily determined by applying a straight edge to the cap to see if it bears evenly all along. Nuts which have to be set up very tight are oftentimes hard to undo, and one of the best methods to loosen them is to take a piece of 1/2-inch key stock about 18 inches long, and fashion one end so that it encircles the nut closely, with as many sides as the nut has. This temporary tool should be made red-hot and then placed around the nut, which should expand enough to make it an easy matter for it to

be unscrewed from the stud. In setting up nuts, an open end wrench is preferable to the ordinary "monkey," as there is much less play and consequently a nut can be set up in a shorter space without any liability of marring the corners. Using Stilson wrenches on nuts, unions, and other objects which can be readily tightened or loosened with a "flat-faced" wrench is distinctly unworkmanlike and should never be done except when absolutely necessary. In tight places, it is sometimes imperative that a chisel be employed to slack or set up a nut, but this also, unless absolutely necessary, is distinctly a bad practice.

Bearings usually show signs of approaching trouble long before they have reached a serious state, and these troubles are, in the majority of cases, started through lack of proper lubrication. The old maxim, "An ounce of prevention is worth a pound of cure," certainly holds true in this case, for a few drops of oil applied to a bearing in time will often save it from being entirely destroyed. An excess of oil should be applied to an overheated bearing at the earliest possible moment, and if feasible the machine should be stopped until it has cooled, or the bearings, especially in the case of the connecting-rods, are liable to seize, and result in still greater damage. Bearings that are too loose will heat as well as those which are too tight, but the symptoms are a little different. Loose bearings invariably produce a knock or severe pounding while the others squeak or grind when running hot and tight.

Leaks around manifolds and pipes, including their own joints and unions, are chiefly due to non-alignment, poor or faulty gaskets, worn or untrue threads, etc. Sometimes by merely setting up on the nuts that hold a manifold, this fault can be remedied, but on the other hand it may be necessary to take it down and have new gaskets fitted. Leaks in castings when small, can often be stopped by allowing a rust-producing solution to remain in the water-jacket from ten to thirty hours. There are several formulas, but this one will give the speediest results:

Thoroughly dissolve sal-ammoniac and water and put this in the jacket in the proportion of one-half pound of sal-ammoniac to one gallon of water.

Cutting gaskets is a neat trick in itself and requires but one implement—a small nosed or ball-headed hammer. Placing asbestos paper on the object for which the gasket is intended, cut it out by pounding on the outside, with the flat side of the hammer, and on the opposite side for the stud holes. The packing now to be had in various thicknesses, which are held together with fine brass wire, is an excellent material to use for cylinder head, exhaust manifold, and water connections, as it is far superior to ordinary asbestos paper—its chief advantage lying in the fact that a connection employing this kind of packing can be broken without destroying the gasket, which is very important when one is forced to make hasty repairs on any parts necessitating the removal of packing. Some recommend water and graphite, but I have found that a coat of shellac on the bottom or inside, and a little flaked graphite and oil on the other side is about the best preparation, for the shellac holds the gasket in place and makes that side absolutely tight, while the oil and graphite prevent it from being damaged when removing the holding parts; and on small gaskets and packings which can be easily replaced, it is not a bad scheme to use shellac on both

sides. When applying shellac, be careful to put it on evenly, as shellac evaporates very quickly, due to the fact that one of its chief ingredients is alcohol. It is, therefore, very liable to thicken, which will result in its application being rather difficult, so it is well if this condition of affairs turns up to add a little plain alcohol to the solution. Great care must be exercised, when cutting cylinder head gaskets, not to allow any part of them to project into the combustion chamber or into the cylinder. Asbestos is a great heat retainer as well as a non-conductor, and it has been found that any portion of it subjected to the high heats of the combustion chamber rapidly becomes incandescent and will ignite the charges of fresh gas at the wrong time, thereby causing pre-ignition, which is sometimes extremely detrimental to the engine. It is a good practice, after cutting gaskets, to have the inside diameter a trifle larger than the cylinder bore, as by observing the rule, a large proportion of pre-ignition troubles will be eliminated. Before applying a new gasket, the old one should be entirely cleaned from the contact surfaces, an ordinary three-cornered scraper being the best instrument to use for this purpose. The importance of reaching a common level, or in other words, a surface free from obstructions, is at once apparent when you consider the fact that the least elevation caused by a small section of the old gasket, or other object, may render the new gasket useless, or cause it to be blown out.

In reference to *mediums for joints*, it may be said that shellac is undoubtedly the best thing to make up joints in gasoline pipes and proves an effective temporary repair to broken pipes or their connections. Strips of cotton cloth dipped in shellac and then bound tightly around the leaking parts, will gradually hold until a permanent repair can be brought about, and shellac should also be used in the acetylene gas connections. White or red lead is best for the water connections, and will invariably produce a watertight connection when the pipes are either hot or cold. Electric tape takes the place of cloth, and shellac for temporarily stopping leaks in the water pipes. Of course, the tape will not last long but will prove handy in case of an emergency. Some unions require gaskets while others depend upon ground joints. There are several special materials for union gaskets or washers, for instance, rubber makes a splendid washer but still will not endure very high temperatures. Asbestos packing, either round or square, is recommended for the valve stem glands, and an important point to remember when packing a gland is the importance of using several turns of small packing instead of one or two turns of a large size. Some shops recommend cotton wicking smeared in white lead for a seat for the valve stem sleeves, and it works admirably.

Water in the cylinder is one of the most serious things we have to contend with in the modern engine. Its presence may be due to any one of a great many reasons, but usually a cracked or porous cylinder is accountable for it. The first symptoms are invariably failure to start, or fitful running, although, of course,

there are many other conditions which bring about the same results. Still, after repeated trials to start, you may find on removing the plugs that there is moisture on some or all of them which has leaked into the cylinder, or it may have been caused by condensation of steam resulting from the union of hydrogen and oxygen in the exhaust or cylinder due to electrolytic action at the points. Spark plugs are easily freed from moisture by cleaning them off well with gasoline, and it is not a bad plan to pour a little gasoline over them and then ignite it with a match, provided there is no danger of igniting anything else. Porous cylinders can easily be made tight by draining off the jacket water, and then filling the jacket with a special preparation which can be had for the purpose in convenient quantities. After filling the jacket, air pressure of say 8 or 10 lb should be applied to force some of the fluid through while it stops the leaks. Leaks of this nature are often brought about by allowing the cylinders to become overheated, which puts additional stress on the castings and this in turn induces fatigue of the metal. Under no circumstances should water be poured on or allowed to enter an overheated cylinder, as it is almost sure to cause an uneven contraction of the metal which in the majority of cases results in a cracked cylinder; but allow the overheated parts plenty of air and they will soon reach a normal temperature.

Since all the mechanical features on the modern engines have in nearly every instance been the result of long experimenting, the consensus of opinion bids fair to suppose that there is little to cause trouble provided care is exercised in putting into practice what others have found by experience to be the best methods to pursue in relation to proper *carburetion* and *ignition*. Weak or rich mixtures are probably responsible for a great proportion of engine troubles. It is not infrequent that an engine refuses to start through either of the above causes. Engines which are being fed too much gasoline are hard to start and usually exhaust a black or dark, dense smoke which has a decidedly foul smell. There are other causes which bring about similar symptoms and they are usually attributed to imperfect combustion caused by poor gasoline, or defective ignition, or poor or too much cylinder oil under normal conditions. Of course, it is not a fair test to take cognizance of the exhaust of an overheated engine, as the flash-point of the lubricating oil may have been reached and it is burning as fast as it enters the cylinder. The leading or foremost conditions that affect carburetor action are in nearly every instance directly due to faulty adjustment or derangement of the working parts of the generator valve, piping or tank. To remedy a smoky exhaust, it is only necessary to observe what is the cause and then shut down a little and the exhaust will become clean. Care must be exercised when diminishing the supply of gasoline, however, not to make the mixture so weak that it will cause the engine to kick back or backfire through the intake manifold to the carburetor, and possibly set fire to the gasoline, as this might bring about serious and damaging results.

(To be Continued)

A SINGLE-HANDED COASTWISE CRUISER

C. Andrade, Jr.



I HAVE drifted into quiet creeks, on blazing August afternoons, when the very fiddler crabs on the shore had scarce ambition to scuttle from the shadow of my gliding craft. I have held my course for hours on end before the good old Southwest breeze. I have followed the rockbound shore down Newport way. I have anchored in sand-rimmed harbors, while the beach grass lay level under the raving lash of Southeast gales—off by the wind-swept islands between Nantucket and the Vineyard. I have been pursued by mighty breakers, skirting the deadly rips that lie to the North of these. I have fled for my life through the black night, with the thunder crashing overhead, and the sea roaring in my wake, and the hail cutting like angry whips, and the lightning shadowing forth vague glimpses of an unknown shore-line. I have cruised, even as you, my reader, have done in your good time, and the man that does it wants a ship under him—a little ship maybe, but still when all is said and done—a ship.

And such a one is this little cruiser. There is nothing original about her lines. You may go up and down the seven seas, and her blood sisters will greet you at every turn. You shall see them piled bottom up in the waist of New Bedford whalers; swinging on the quarter davits of steam yachts (English mostly, for they have to have *boats* over there); neatly nested in dull gray under the huge boat crane of the latest super-dreadnaught; snugly perched in a seemly white line along the ninth or tenth deck of my lady of the Cunard or White Star; housed by ones or twos in every life-saving station in civilized Christendom; some a little slimmer of waist than others; some with a little more flare, or a little more rocker of keel; some carvel and some clinker; but differing among themselves no more than different blue fish out of the same school; and by the same remorseless process of selection, elimination, survival and evolution, about as well fitted as the blue fish to their environment. Darwin, Agassiz and others of their kind have studied the anatomy and shape of the blue fish with much care, and they have suggested no change or improvement in either his lines, construction or general arrangement plans. And I, moved by the consideration of these things, can suggest no change or improvement in the whaleboat. I merely receive the gift of the centuries with due humility and thankfulness.

Of course, as some blue fish are a little fatter of

belly than others, and a little longer of fin, or lighter or darker of color, so, within certain prescribed limits, your whaleboat may be moulded to suit the fancy. And when you come to such details as sail plan, deck layout, construction detail and interior arrangement, there is room for much diversity.

So let us get down to this specific boat, and discuss her.

She is a single-handed coastwise cruiser—neither more nor less. Provision her, fill her tanks, see that all is secure, and she will take you away for some three weeks or a month, and during all that time you need not see civilization, or man or his handiwork, unless you want to. With her 30 inches of draught she will take you into many a quaint, forgotten waterway. If by mischance she goes aground on mud or sand, she will take no harm. And in those sterner moments in the open, when you look the Storm-God between the eyes, she will not fail you.

She is not a boat to be built by an amateur in his leisure time. She is a job for a master boat-builder—at his best. Don't expect to have her built cheap. In fact don't bother with her, or with this story, at all unless you know and appreciate a good boat. If you do, and will pay your builder enough to let him hold exactly to the plans and specifications, you will have a craft that will live as long as you do, and will be an everlasting joy. Don't try to change her or improve on her. Take her or leave her.

For example, don't put two masts in her. A yawl or ketch rig on a boat of this size is an affectation. Slocum ran the *Spray* single-handed under a huge sloop rig from New Bedford to Gibraltar; then cut her down somewhat, and ran her, still a sloop, clear away to the Strait of Magellan, before ever he changed her to a yawl. His mainsail showed something like 600 square feet. The sail plan of our boat is only 298 feet in all. The man who cannot handle that sail plan should seek admission to an old ladies' home. And yet there is lots of drive in that jib and mainsail. Put her in good lumpy water, with sheets just started and a piping breeze, and she will show her heels to a whole fleet of flimsy racers. Her weights are so distributed as to carry her through an ugly sea as easily as a rocking chair. With her gasoline tanks winged clear out to the very clamps, her roll will be as easy and long as that of most boats twice her size. With her keel weight aft and her chain weight forward, and the tanks strung well along, and her ends fine below and bluff on deck, she will pitch as little as is possible in this vale of tears.

Another thing you must not change, is her keel profile. That keel is a straight line from under her forefoot to the heel of the rudder—keep it so. Don't put a rocker on it. The reasons are many.

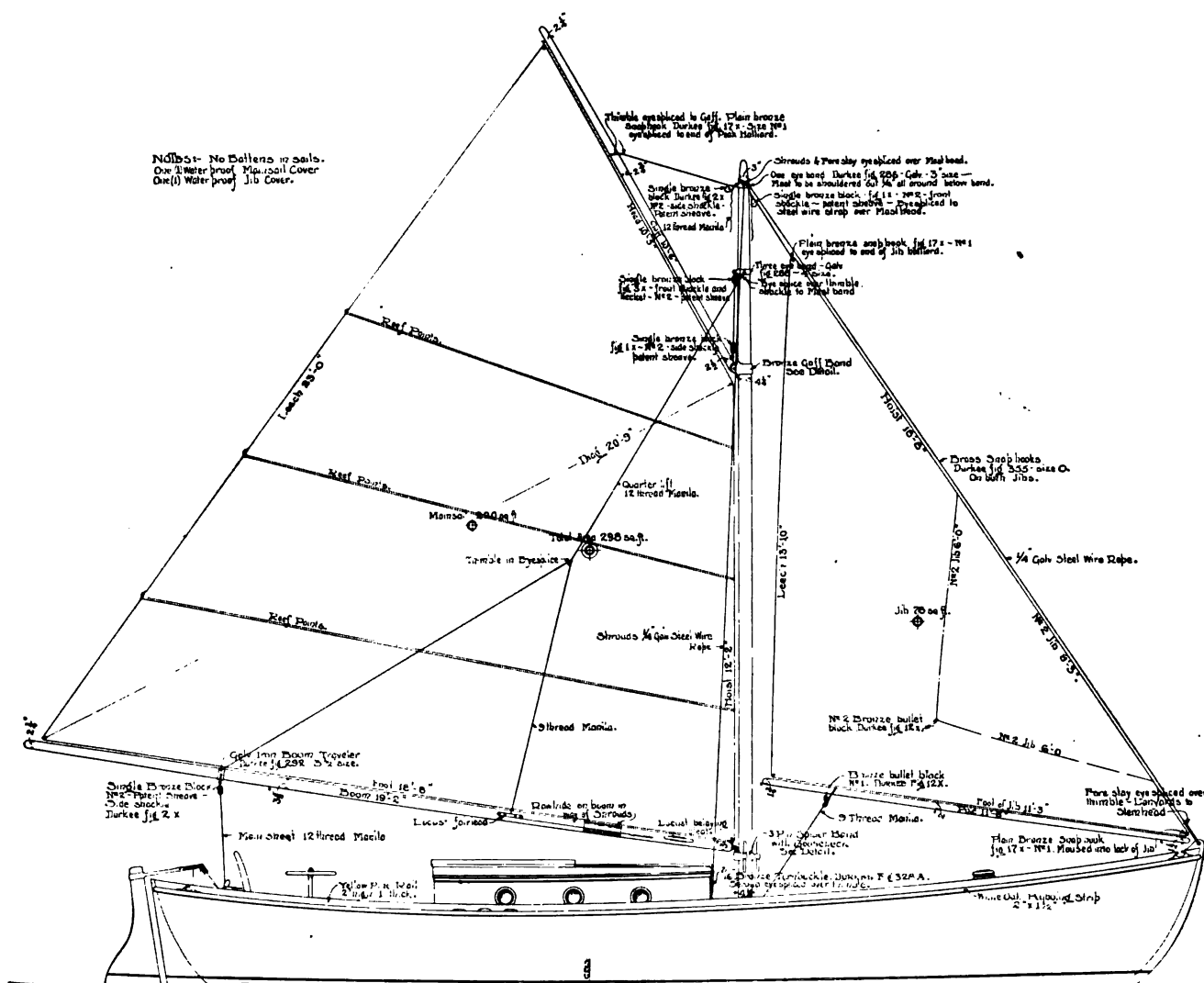
First and foremost, the long, raking straight keel

makes a supreme sea-boat—in this, that when she is running off with an ugly quartering or following sea, she will not broach-to. There are times in a small boat when this quality spells life or death.

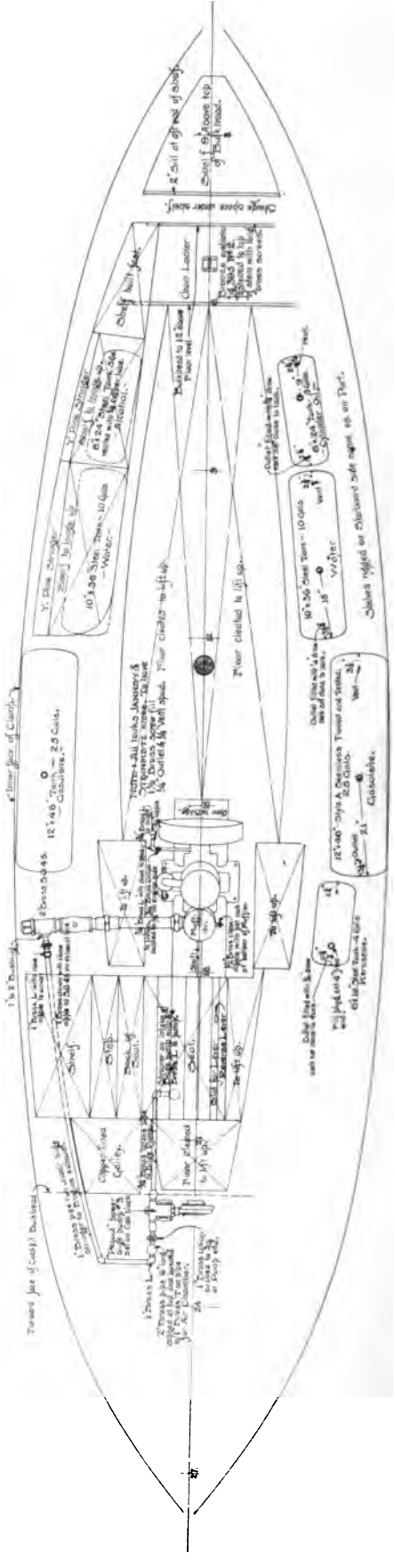
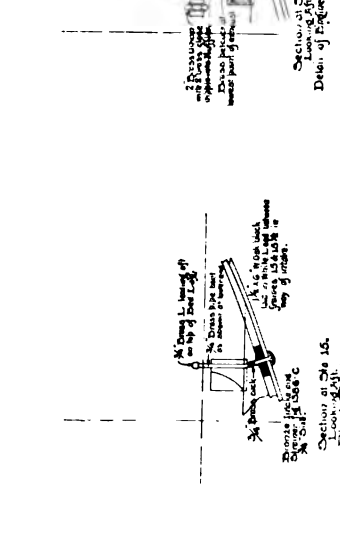
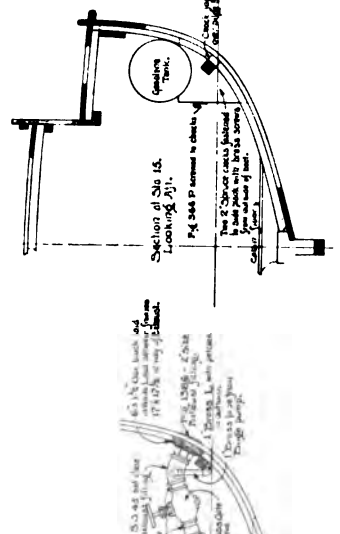
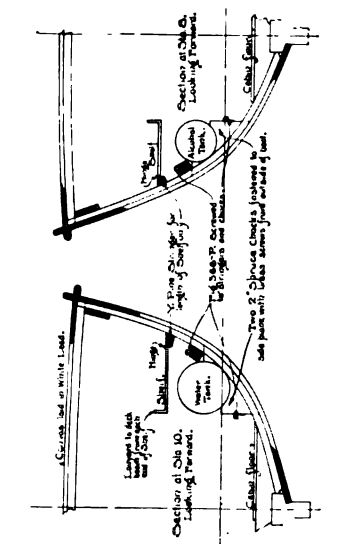
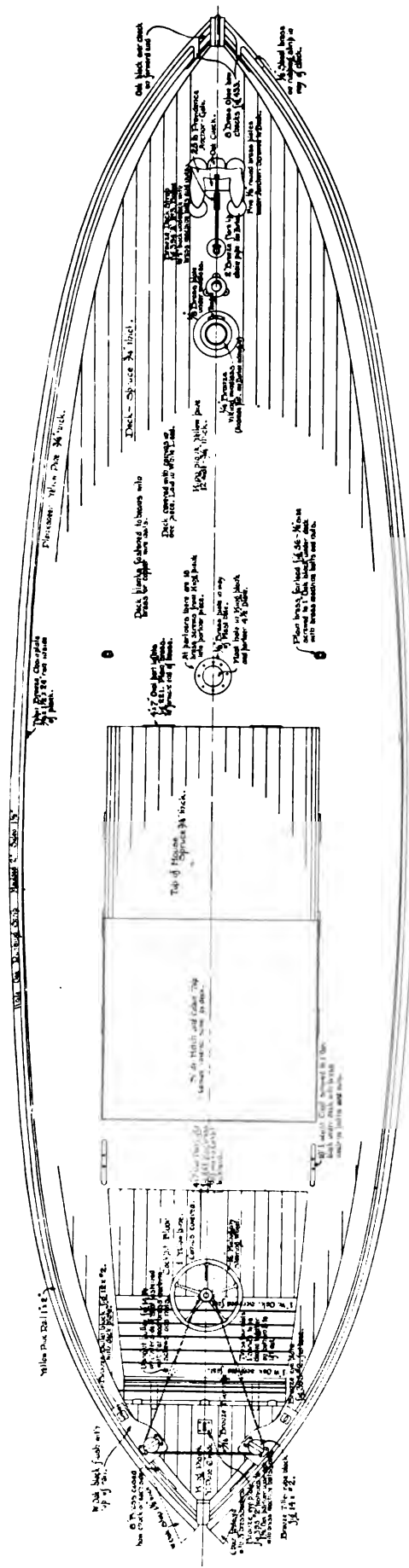
Another reason for the straight raking keel is that it gives the maximum of holding power for a given draught—the reason being that, when the boat is underway, every inch of her keel length is always entering solid water. If you ran the keel of this boat parallel with the water-line as far forward as her mast, although you would have more lateral plane, your boat would not turn out to windward anywhere near so well.

A third reason for the straight raking keel is that it insures a perfect balance at all speeds. I never grasped the full significance of this thing until I analyzed Spray's lines (THE RUDDER, June, 1909), and then I appreciated the vital difference between a straight raking keel and a rocker keel. With a straight raking keel every inch of the keel not only enters solid water at all times, but one lineal foot of the forward end of the keel enters exactly as much solid water as one lineal foot of the after end of the keel; and the result is that no matter how hard you drive your boat, the C. L. R. of the keel will never crowd forward. With a rocker keel, on the other hand, one lineal foot of the forward end of the keel enters much more solid water than one lineal foot of the after

end of the keel; and the result is that as the speed of the boat increases under a freshening breeze, the total effective lateral pressure increases much more rapidly at the bow than at the stern, and the boat gripes, and in the end becomes uncontrollable. In this respect a boat with a very deep forefoot, and a long straight keel almost horizontal, as in the old English cutters, is as bad as or worse than even a boat with a rocker keel, because all the solid water which their lateral plane ever receives is at the stern and forefoot; and the result, as every one knows, is that they need all kinds of headsail to keep them off as soon as it begins to blow. In principle, the racing fin keels so common with raceabouts are as bad as the old English cutters in this regard, although as the lever arm is shorter, its results are not so apparent except under extreme conditions. I have in mind one race in the late Summer of 1905 when I carried full sail on *Invader, Jr.* (raceabout) in a breeze that had even Tartan down to reefs. The first two legs were broad reaches (we jibed at the first mark, and it was something to remember) and at the second mark we led the fleet handsomely. But as soon as we headed up for the finish on the third leg, I found it was a physical impossibility to keep her mainsail full. We trimmed her jib down 'til we were afraid the head-sheet would part, and all hands but the skipper laid out to the very tip end of



Sail Plan of Mr. Andrade's Single-Handed Auxiliary Coastwise Cruiser



Deck and Interior Arrangement Plans of Single-Handed Auxiliary Coastwise Cruiser

her long after overhang, and even then we could not keep her off; and we lost the race as a result.

As a consequence of the permanent balance derived from the straight raking keel, our little cruiser will sail herself just as unerringly as did Spray.

You will notice that the C. E. of the sails falls aft the C. L. R. minus Rudder, but falls forward of the C. L. R. plus Rudder. This makes a boat that will never miss stays. Again you will notice that the C. L. R. — R, the C. E. and the C. L. R. + R. all fall well aft of the Center of Buoyancy, and the result is that no matter how hard you drive her, she will roll out forward, instead of burying; and when she is at her normal speed, all her centers will come together pretty much like Spray's.

With her mast stepped far aft, she will lie at anchor with her mainsail up, just as quietly as a yawl under mizzen sail, and this is no small item in a cruising boat.

Also, as you sit at the helm, the boom clears your head by some nine inches, so that you don't have to duck every time you come about.

Her deck plan is chiefly notable by the things that are *not* there. Working aft from the bow, we first come to a 25-lb Providence anchor. I have been shipmates with these same anchors for some time. Give them a fair scope of chain and they will hold their own with anything that ever gripped the bottom. Just aft of the anchor is the chain pipe, and aft of that is a little ¼-inch Viking windlass. Modesty forbids me to say anything about the Viking at this time and place, but if you will ask Durkee & Co. to send you a copy of The Windlass Book, you may possibly learn several things of value regarding the ground tackle question.

The deckhouse is small and low, with a very large hatch. The cockpit arrangement, seat and steering wheel are taken bodily from "Muskeget" (THE RUDDER, February, 1909). I tried them out thoroughly for three years in that good old ship, and if I live to be a hundred, will never have anything else. I can and have sat for eleven steady, consecutive hours at Muskeget's wheel (and most of it rough going) without any muscle fatigue or nerve strain, and finished practically as fresh as I began. You can't do that unless your heights, and offsets and distances are all right—so don't try to change to another method of steering.

Those three little notches, in the top rail of the back of the seat, are to lash your boom into when in port, under power, or while reefing.

Going below—there are tanks, tanks, more tanks and then some. But they are put where you can see them, where they are out of the way, where they don't affect the boat's trim whether they are full or empty, where they make her roll and pitch with the utmost ease of motion; and you can take any of them out in thirty seconds by simply casting off a couple of lanyards. If you are going off for three or four weeks in the open, you want plenty of water to drink, plenty of gasoline for your engine to drink, plenty of cylinder oil, plenty of kerosene for the lights, and plenty of alcohol for the stove (God defend us from a kerosene stove on any boat, big or little).

In the matter of sleeping quarters, you spread your mattress on the bottom of the cabin forward of the mast, and secure such sleep as the mosquitoes and the memory of your own many past misdeeds will allow. I have seen the mosquitoes in Deering Harbor so shameless as to defy citronella, tobacco smoke and language of the utmost cogency and directness. That particular

occasion (August, 1910) will, I am sure, live ineffaceably in the memory of all who were so fortunate as to be there at that time. I had been at Deering Harbor often before, and was accustomed to think it a charming place. We stood it for two nights—then hiked across to Greenport, battened down hatches, and burned two large sulphur candles below, while we remained on deck and there danced that hornpipe on the graves of our enemies, to which Brother Bieling so feelingly referred in his New Year's card. When the candles had burned out, we opened her up, and spent an hour or so heaving out dead mosquitoes. There was some dispute afterward as to just how much higher the boat rode after the dead mosquitoes had all gone overboard—some of the crew put it at five inches, and some at six. In order to settle the matter, it was proposed to return to Deering Harbor for the night and get a new load on board and make accurate marks at the stem and stern. This proposal, however, was gently but firmly voted down, and we repaired to the exact middle of Orient Harbor where we were just one mile from the nearest shore, too far for the mosquitoes to fly out.

Barring such times as that, you will sleep most comfortably on the cabin floor forward of the mast. It will always be dry, for there is no cabin or skylight over you to leak, nor will the bilge water get at you from below, as it all runs way aft, and the rig for clearing the limbers will always keep her dry as punk forward. Neither will there be any danger of falling out of your bunk.

The most important thing below deck is the engine, and you will note that I have given it the place of honor, right in the middle of the cabin space. The engine is the hardest working member of the crew, and should be where you can get at it from any side, above or below.

I haven't specified any engine, because there are now so many good ones, that choice is difficult. So get any slow, heavy, two-stroke engine that you know and can trust. It should be about 7-h.p., should be a single-cylinder, and of the two-stroke type. Personally I prefer a three port to a two port, but every man is entitled to his opinion on that point. It should not turn up over 500 r.p.m. at the outside. Make-and-break ignition—or possibly the new Wico without battery, coil or magneto, which certainly looks good on paper, although I have never been shipmates with one. Be sure your air intake is covered with wire gauze—then a backfire will not set your bilge afire. Also take your air from a sleeve on the exhaust pipe; it will cut your gasoline bill just about in half. If the muffler is not indigenous to the engine, you might use a Hydrex; and of course, it goes without saying that the exhaust water wants to go into the engine exhaust in the muffler, or as near the muffler as you can get it. Always shut the big valve in the exhaust pipe as soon as your engine stops.

The bed logs shown in the plans are set for one particular make of engine, and they will be set a trifle higher or lower, or nearer together or farther apart, according to the dimensions of your engine. This matter must be settled, however, before the planking goes on. Be sure that your engine has the exhaust, carbureter and water intake all on the port side; so as to leave a clear gangway on the starboard side.

Use a Gordon reversible and feathering two-blade propeller, with the reverse lever working in a slot in the seat under the hatch. You can lean in from the cockpit, and steer with one hand and work the reverse lever with the other, and you will find this mighty handy

when you are making up to a crowded dock. When you are at anchor, you can shove the lever way forward, and sit at your ease. I don't think you can much improve on this layout under the hatch. It serves as a companion step, a very comfortable seat, a gear case cover, a locker, with two big shelves, and a cozy galley, well out of the way and yet within easy reach.

Last but not least, in the words of old Slocum, "Let experience sail with the boat." You youngsters that are just beginning, go slow. I needn't say that to the old hands, for they know. I have observed that the rashness and foolhardiness of sailors is in inverse ratio to their experience. You don't have to hunt trouble on a cruise. Old Ocean will give you plenty without your seeking it. By that I don't mean to be timid—seek the open, and glory in it. But never take a needless risk. Slocum, with all his consummate skill, sailed out of New Bedford in the late Fall of 1908, bound for the West

Indies; a vessel spoke him a few days later in a gale, and since that hour no mortal man has seen him. Pandora, that made port here last Summer from Australia and the Horn, has not been heard from since she cleared.

By expanding this boat on a ratio of 3 to 2, you will have a world cruiser, 42 feet $1\frac{1}{2}$ inches over all, with full headroom in her cabin. So enlarged, she should have a ketch rig and two stockless anchors pulling into the hawsepipes.

Her dimensions are as follows:

| | | |
|----------------------------------|---------|-----------------------|
| Length o. a. | 28 feet | 1 inch |
| Length w. l. | 25 " | $8\frac{1}{4}$ inches |
| Breadth over rubbing strip | 7 " | $6\frac{3}{4}$ " |
| Freeboard, bow | 3 " | 8 " |
| Freeboard, least | 2 " | 2 " |
| Freeboard, stern | 2 " | 10 " |
| Draught, extreme ... | 2 " | 6 " |

ONE-HUNDRED-AND-FIFTY-HORSEPOWER MARINE OIL ENGINE

THIS is the first heavy oil marine engine, working on the Diesel cycle ever built in the United States, having been manufactured by The New London Ship and Engine Company, of Groton, Conn.

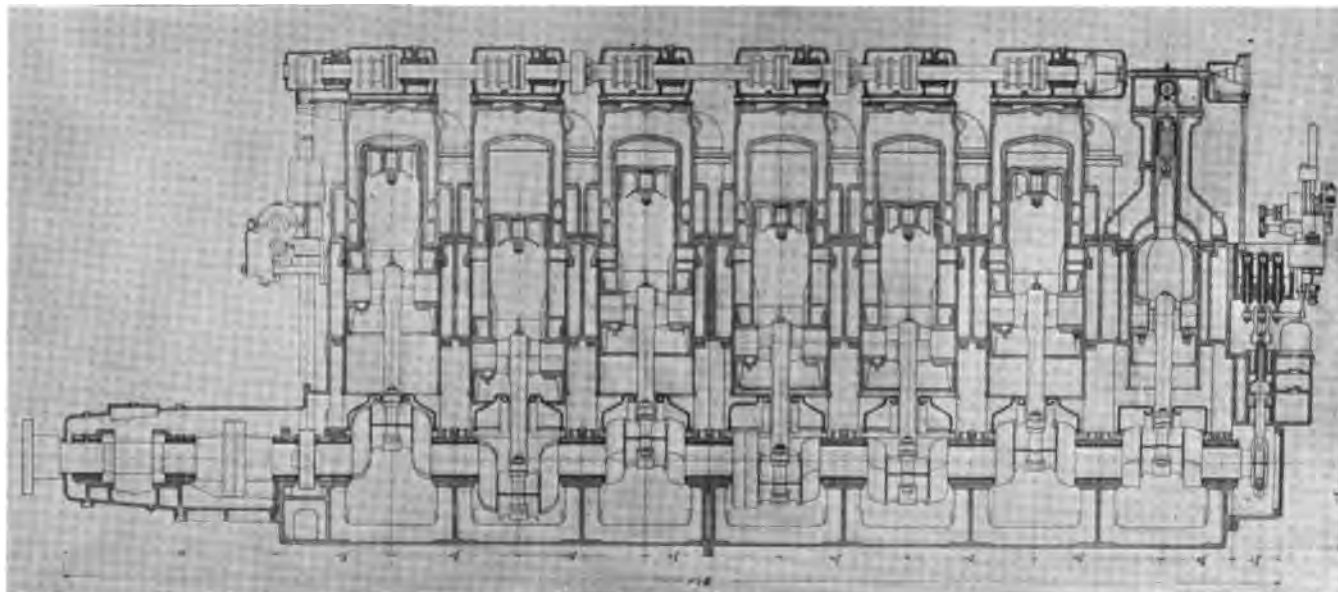
The over-all dimensions of this engine are: height, 4 feet from center of crank-shaft to top of valves; breadth of bedplate, $24\frac{1}{2}$ inches, length over all 9 feet; weight of engine complete, 9,450 lb. It develops 150-h.p. when running at 500 r.p.m. On test stand experiments, it has developed 180-h.p. delivered at the brake.

This engine is of especial interest for the reason that it is a representative type of the latest forms of heavy oil marine engines as developed in Europe. Engines of this type have, during the past few years, been built in large numbers on the continent and some of the units

are enormous in size, going up into thousands of horsepower.

So far as the principle and mechanisms are concerned, this engine, although of only 150-h.p., is the same as the monster foreign engines, except that it is built on a smaller scale. In view of the great amount of interest which has been shown in this type of engine, its construction and method of operating will be found of interest.

As previously stated, the engine works on the well-known Diesel or constant pressure cycle. No carbureter, nor ignition system is required. Fresh air is taken into the cylinder and is compressed to about 35 atmospheres or between 500-600 lb per square inch. At this high pressure, the air is highly heated and is an ideal condi-



Diesel Type Heavy Oil Marine Engine, Built by The New London Ship & Engine Company

tion to produce perfect combustion of the fuel which is injected through a spray valve at the end of the compression stroke. The fuel burns practically as fast as it is sprayed into the cylinder, thereby raising the temperature of the compressed air. While this combustion is going on, the piston moves through about 1/10 of the stroke, thus maintaining the pressure practically constant during the period in which the fuel is being injected. After a sufficient amount of fuel has been supplied, the air expands and the pressure diminishes, all the time doing work, until the end of the stroke. At the end of the stroke, the piston passes the exhaust ports, the heated products of combustion pass through these ports and the exhaust pipe, and, at the same time, a valve in the cylinder head opens, admitting fresh air which drives the products of combustion out of the cylinder and leaves it full of fresh air, preparatory to the next compression stroke.

It is thus seen that this is a two-stroke engine which is far better adapted to marine purposes than the four-stroke engine. In the first place, there is no objection to the use of the two-stroke principle in this form of engine for the reason that the scavenging is done by means of pure air, so that there is no danger of losing fuel through the exhaust as is done with the ordinary constant volume stroke where the scavenging is done by a mixture of air and fuel.

The great advantages of the two-stroke principle are: simplicity of construction, absence of exhaust valves, and ease in starting and reversing.

The starting of this engine is done by means of compressed air contained in a steel flask alongside the engine. When it is desired to start the engine, a lever fitted at its forward end is thrown over into position, either ahead or astern, according to the direction in which it is desired that the engine should start. This lever operates a set of air valves, which, in turn, admit air to the proper cylinders at the proper time, thus forcing the engine to turn. As the engine turns, the auxiliaries, being connected direct thereto, are put into operation. Fuel is forced into the cylinders and ignites on coming in contact with the heated compressed air.

The reversing of the engine is accomplished in the same way, that is, compressed air is admitted to the cylinders from the compressed air tank, bringing the engine to a stop and then starting it in the direction required, after which, the engine takes up its own work, the compressed air is shut off automatically and the engine runs under its own power in the direction desired.

This reversing mechanism is exceedingly simple. There are no working parts visible, such as duplicate cam-shaft, levers, etc. The cams which are used in the operation of reversing are carried on the main cam-shaft and normally run idle. It is only when it is required to reverse the engine that a plunger comes in contact with one or the other set of cams and remains in contact only so long as the operation of reversing is in progress. This operation is only a matter of a few seconds and, in practice, has been found to be exceedingly reliable.

The auxiliaries attached to the engine consist, first, of a two-stage air compressor located at the forward end of the engine and driven by a crank on the main crank-shaft. This compressor is simple in construction and its function is to supply compressed air at a high pressure which is used for spraying the liquid fuel into the cylinders. The compressor has an excess capacity

so that it is also used in charging the air flask which contains the air used for starting the engine. Forward of the air compressor is a group of pumps driven by an eccentric on the end of the crank-shaft. These pumps are all of the plunger type, one being used for circulating water, another for lubricating oil, and three small high pressure plunger pumps being used for forcing the fuel into the cylinders. Above the pumps are located the quadrant and handling gear previously mentioned.

At the rear end of the engine there is a thrust block integral with, and being an extension of, the bedplate. At this end of the engine is also located a mechanical oiler for the lubrication of the engine. The valve gear is very simple in construction, consisting of a vertical shaft, driven by spiral gears from the main shaft; the vertical shaft in turn is connected by spiral gears to the main cam-shaft which runs along the top of the engine and is practically entirely enclosed by a set of aluminum casings. At the forward end of the crank-shaft is a centrifugal governor which prevents the engine from racing.

No flywheel is used on this engine for the reason that it has six cylinders and works on the two-stroke principle; each cylinder gives one impulse each revolution. In consequence, there are six impulses per revolution which gives such an even turning moment that no flywheel is required. Due to the absence of large heavy valve gears, the engine runs exceedingly quietly. In fact, it is the opinion of many engineers who have seen this and similar engines in operation, that they run as quietly as any steam engine developing the same amount of power.

This engine represents the smallest size of cylinder which The New London Ship and Engine Company proposes to build. It would also be possible to supply an engine of four cylinders of this size. Four cylinders is the minimum number which can be used advantageously and, at the same time, retain all the advantages as regards starting and reversing, but with a four-cylinder engine a small flywheel would be required.

This is what might be called the "baby engine" of the marine heavy oil type. Although it is the first ever built in this country, it has been succeeded by a number of large ones. The next larger size is a 300-h.p. engine running at 300 r.p.m. This engine has been completed and has given most satisfactory results. In addition to this, the company is now building twenty-two engines of 450-h.p. each, a number of 300-h.p. high-speed engines and another 150-h.p. engine. The company is also now ready to undertake the construction of engines of 1,000-h.p. or more.

The two-stroke marine engine may be divided into two classes: the light and the heavy. The light type run at a high speed, use bronze castings for housings and bedplates and while amply strong, weigh only from 38-40 lb per h.p. They are comparatively expensive and will probably only be used on war vessels, submarine and high-speed yachts. The heavy type is intended for commercial use, runs at a more moderate speed, has cast iron bedplate and housing, and weighs from 80-100 lb per h.p.

According to the opinion of many marine engineers, it is only a question of a short time before we shall see our largest battleships and passenger steamers propelled by engines of the same general type; that is, working on the same principle as the engine shown at the power-boat exhibition in Madison Square Garden recently.

SEA HOUND, A REAL CATBOAT

SEA HOUND is one of the latest products of the Crosby boatshops in Osterville, Mass., the home of Cape cats, and represents not only the ultimate in that type of boat, as developed by Charles Crosby, the veteran of the Crosby family of boat-builders, but also embodies the experience of her owner covering a number of years in small boats.

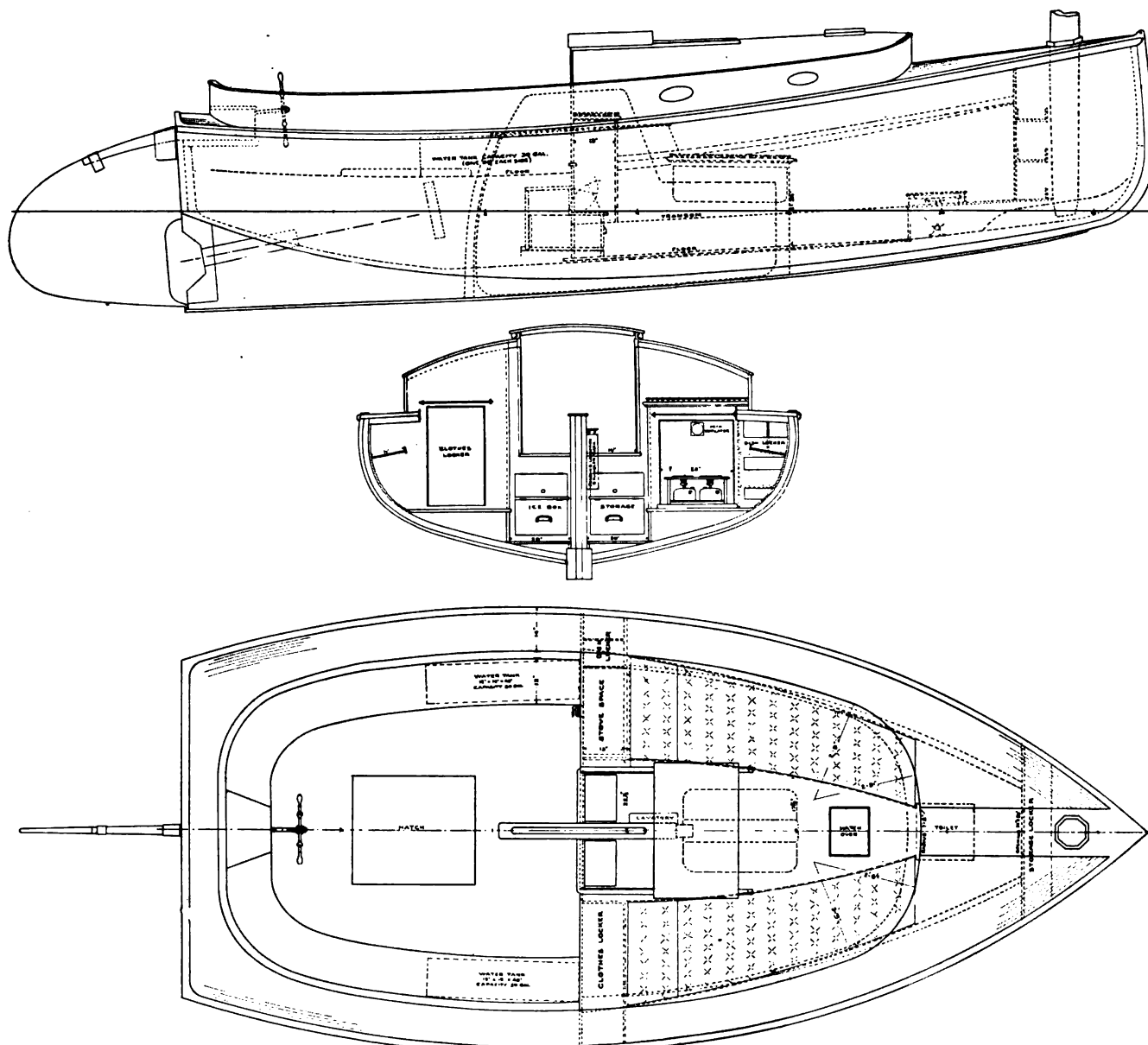
The owner writes: "After many years of such contentment as can only be had with a good, able and comfortable boat, I was induced by the trend of the times and the advice of friends to sell my old cat and to purchase what my friends called a 'real yacht,' namely, a 25-foot water-line sloop with ends making her 42 feet over all. I at once discovered that a catboat is not the only kind of a boat with faults and did some thinking; then just about this time THE RUDDER published a number of articles on Cape cats, showing that there were still many people who believed in them, and sustaining my own views that a good Cape cat is quite as 'modern' as any other type of boat, when it comes to downright

comfort and something for your money. I accordingly sold my 'yacht,' took the money—and some more—to Charles Crosby; giving him instructions to build me the best Cape cat he knew how, omitting all fancy work or ideas, and giving me the most boat possible. Sea Hound is the result and in her I have yet to find a fault."

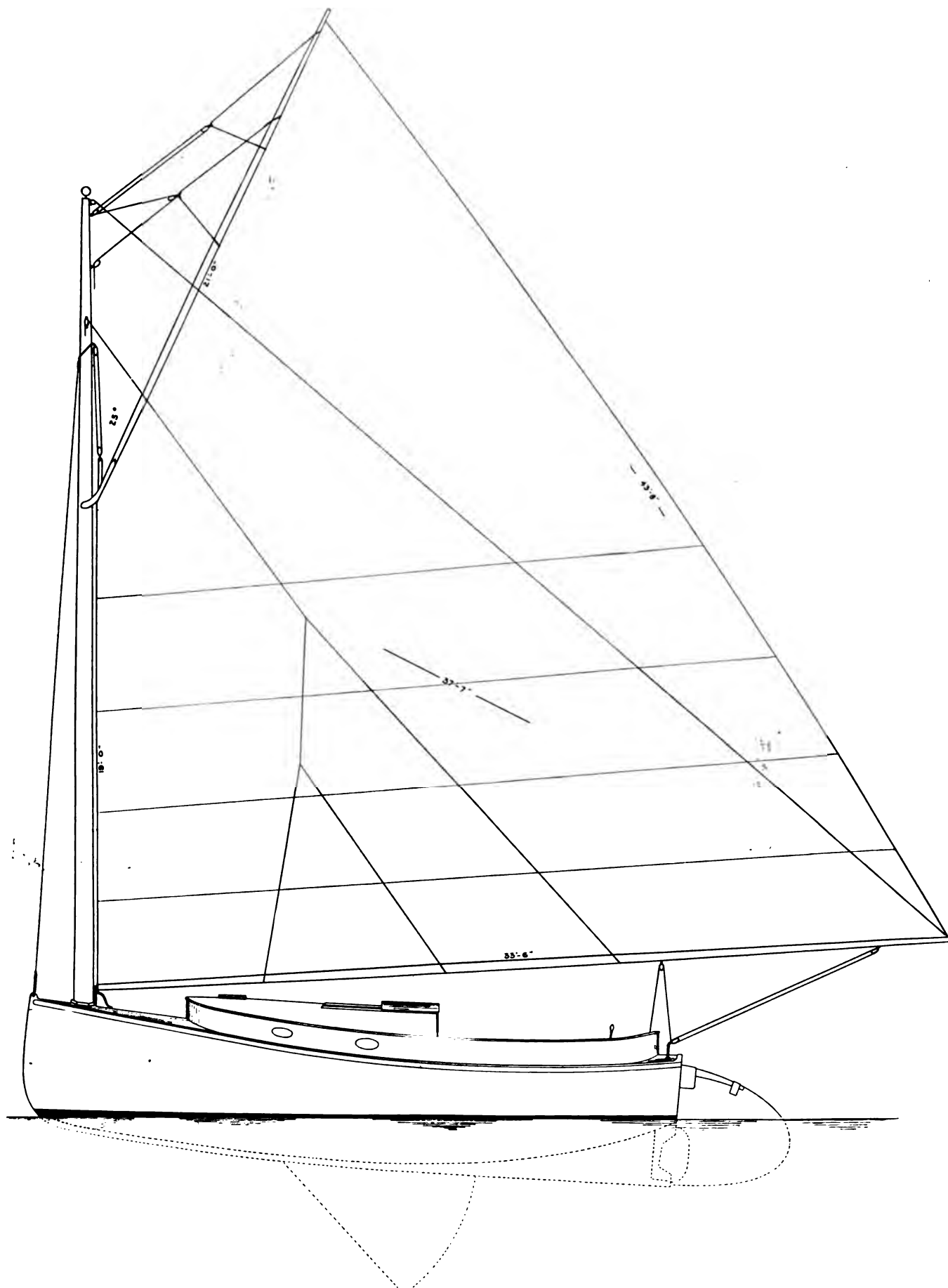
Sea Hound is a true Cape cat in every respect; no views of the owner being allowed to alter in the slightest degree her form. She has the square broad stern, with the underbody kept well down, and the "barndoor rudder" as found in all cats in the waters around the Cape, and while a very full-bodied boat, her lines are all long and easy, giving wonderful qualities of seaworthiness, speed and room.

Her length was fixed at 25 feet water-line, in the belief that such size is about the limit of practicability in the type, and this appears to be well borne out in such cats as have been built to greater size, although Sea Hound herself gives no hint that such is the case.

The form of Sea Hound was determined from a model prepared by her builder, and her general arrange-



Accommodation Plans of Twenty-Five-Foot Catboat Sea Hound



Sail Plan of Twenty-Five-Foot Catboat Sea Hound, Built by Mr. Charles Crosby, of Osterville, Mass., for Mr C. W. Lord, of New Haven, Conn.



Views of Sea Hound, a Twenty-Five-Foot Cabin Cat

ment is based upon plans prepared by the owner. It will be noted from the plans that much care has been taken to preserve harmony of line and to ensure simplicity in every detail. The cabin provides accommodations for four, in well-lighted and ventilated quarters, with every convenience for cruising. Stove space, food lockers, dish-racks, ice-box, etc., are all concentrated at one point and most simple and convenient, while all odors from cooking are at once carried off through the companion hatch. Unlike most centerboard cats the board is not in the way, as it is kept low and there is sufficient floor space forward to walk around same. Toilet is located forward and curtained off from rest of cabin, with ventilation through hatch in cabin roof. The cockpit is very large and will easily seat twelve people without crowding, making the boat exceptionally desirable for day or party sailing.

Construction is heavy throughout, consisting of oak log keel sided 7 by 9 inches, frames oak 2 by 3 inches, planking selected cypress finished one inch thick and fastened with galvanized nails, all butt joints being made in between frames on butt blocks. Deck is of first quality white pine strips 1 by 1¼ inch laid on edge and finished bright. Cockpit and cabin are finished in cypress and hard pine with oak trim; all finished natural. All metal work is of brass and Merriman blocks are used throughout.

Sea Hound's construction was started the last week in February and she was launched April 8, 1911. Her trial trip was made in April, leaving Osterville on the

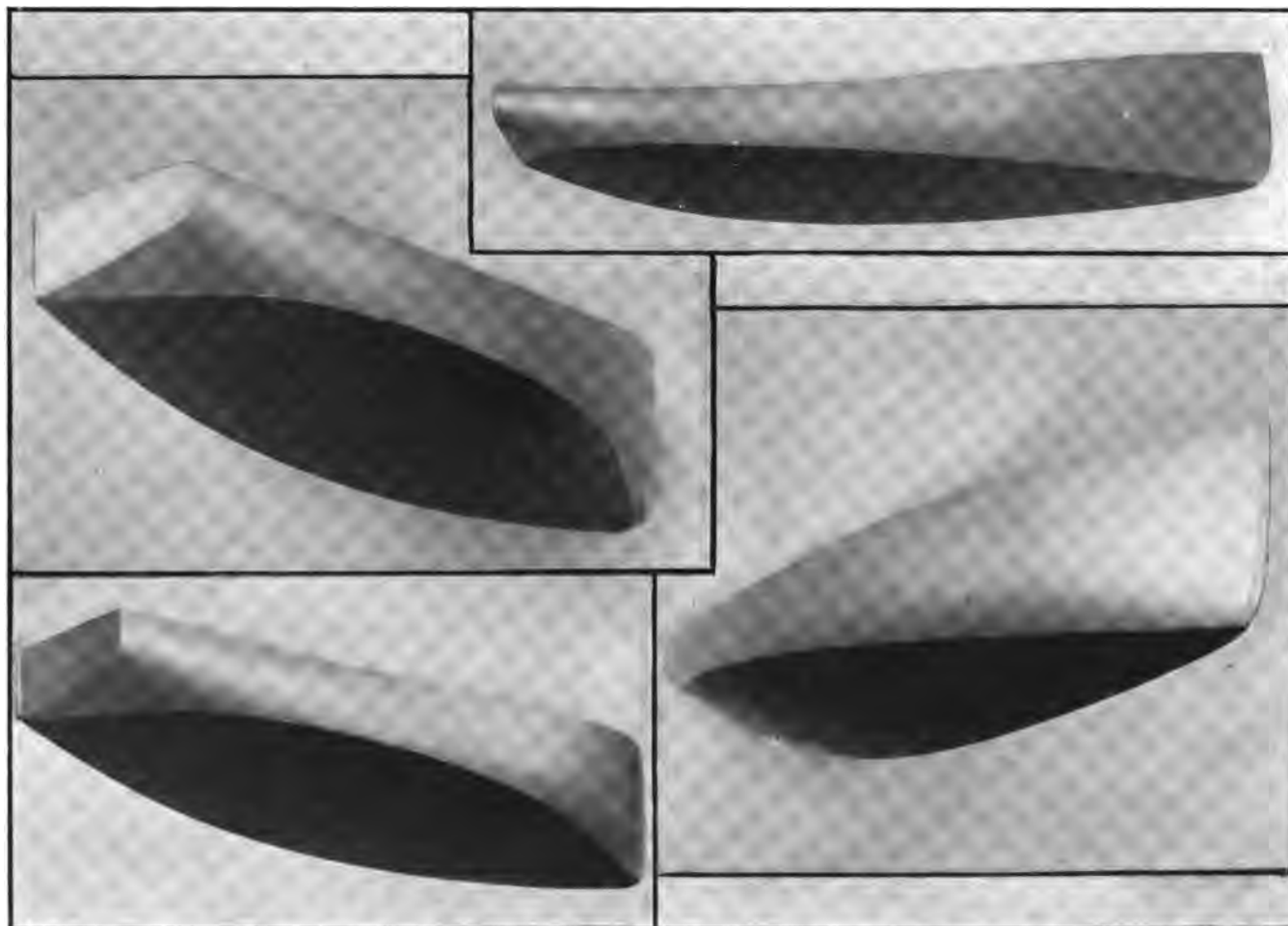
14th, and arriving at New Haven, her home port, on the 17th, after a trip in which she fully demonstrated her ability to negotiate some very miserable weather, making port each night and showing an average speed for the entire trip of a little better than 5 miles per hour; and this despite the fact that head-winds were encountered for practically the entire voyage.

She has been fully tried out during the past season, in day and week-end trips, proving herself under all conditions, an able, comfortable, speedy and easily handled boat, with never any cause to fear that she is being strained. And this is the owner's idea of what constitutes a good boat, the only kind that will give real and lasting pleasure year after year, at a minimum cost of money and effort.

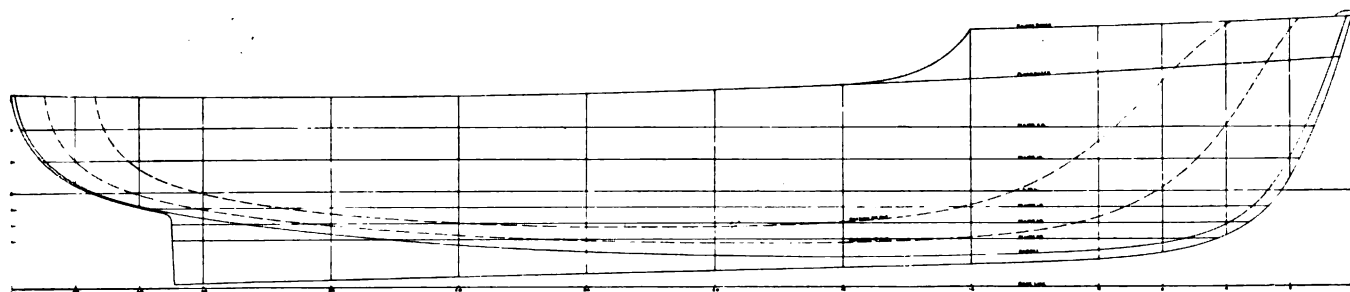
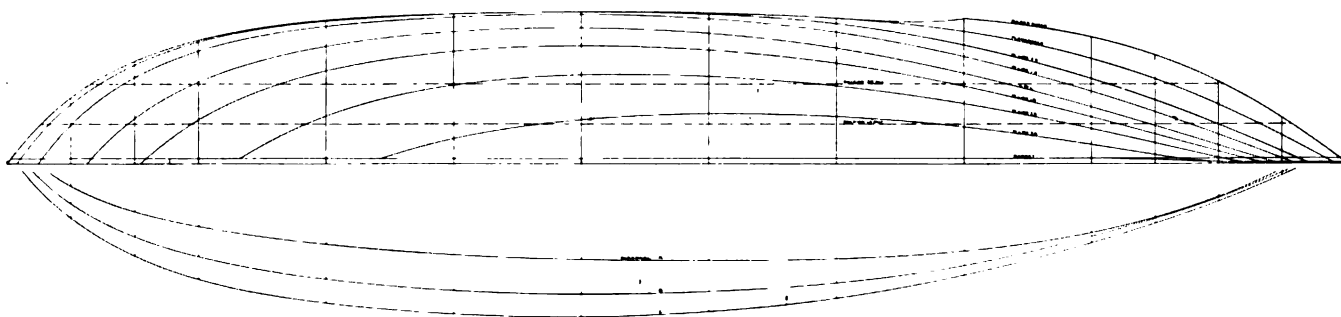
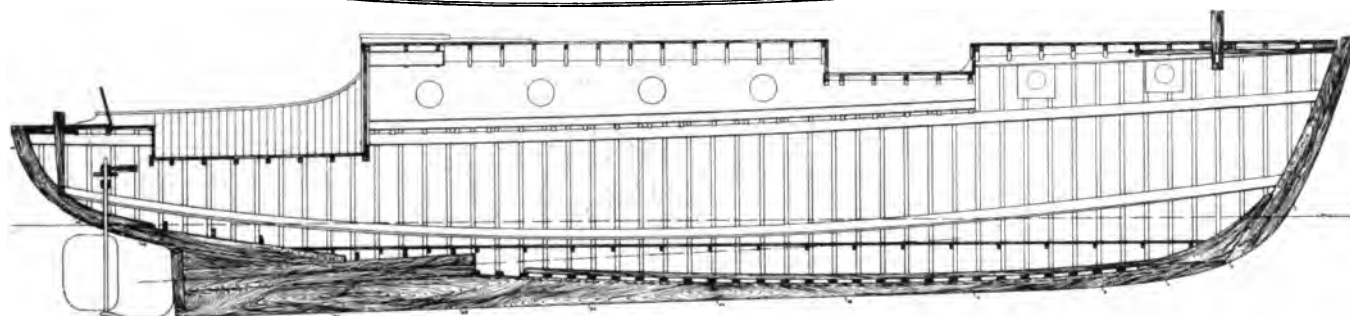
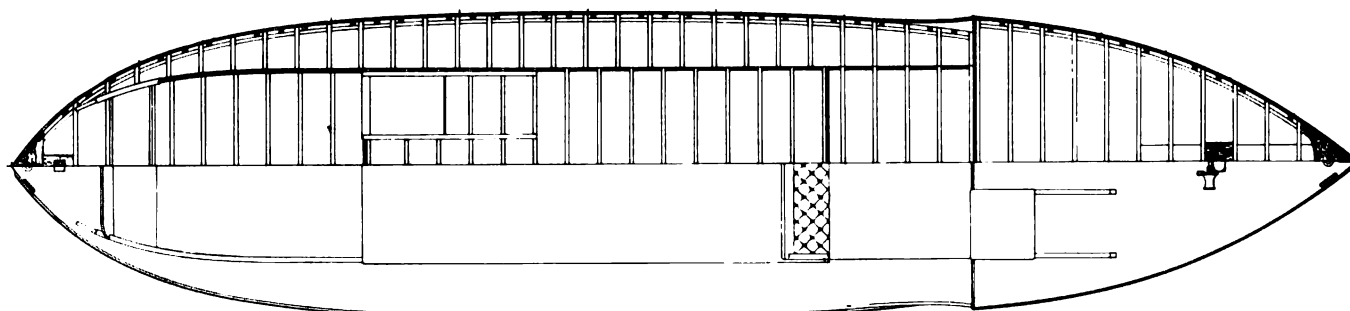
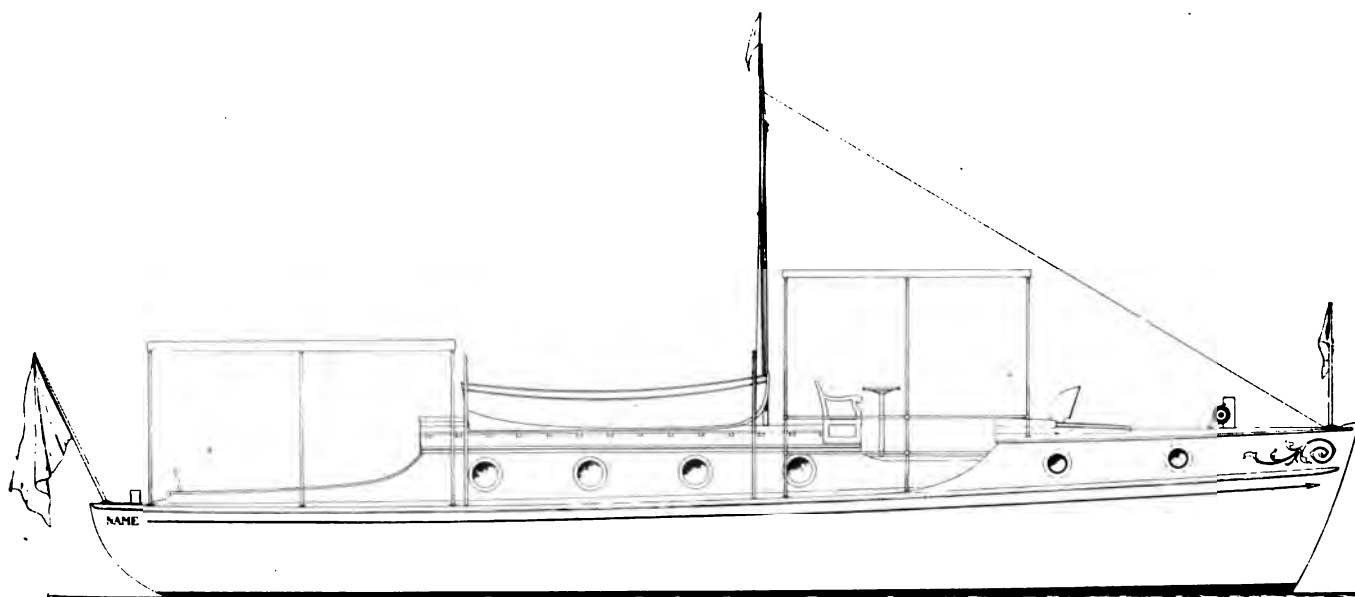
On the plans it will be noted provision was made for engine under cockpit floor, but aside from the building in of an engine bed and shaft alley the owner has not as yet carried out this feature.

The general dimensions of the boat are as follows:

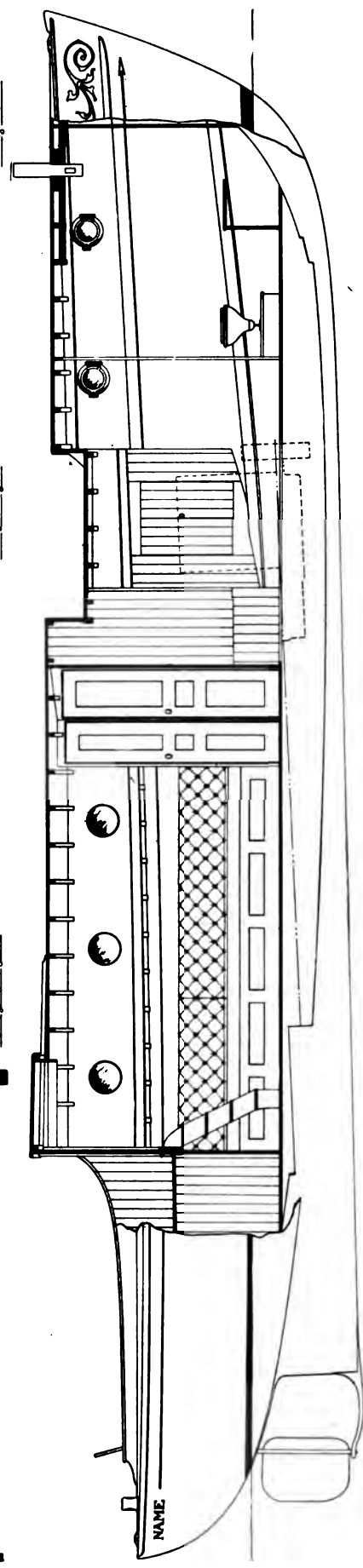
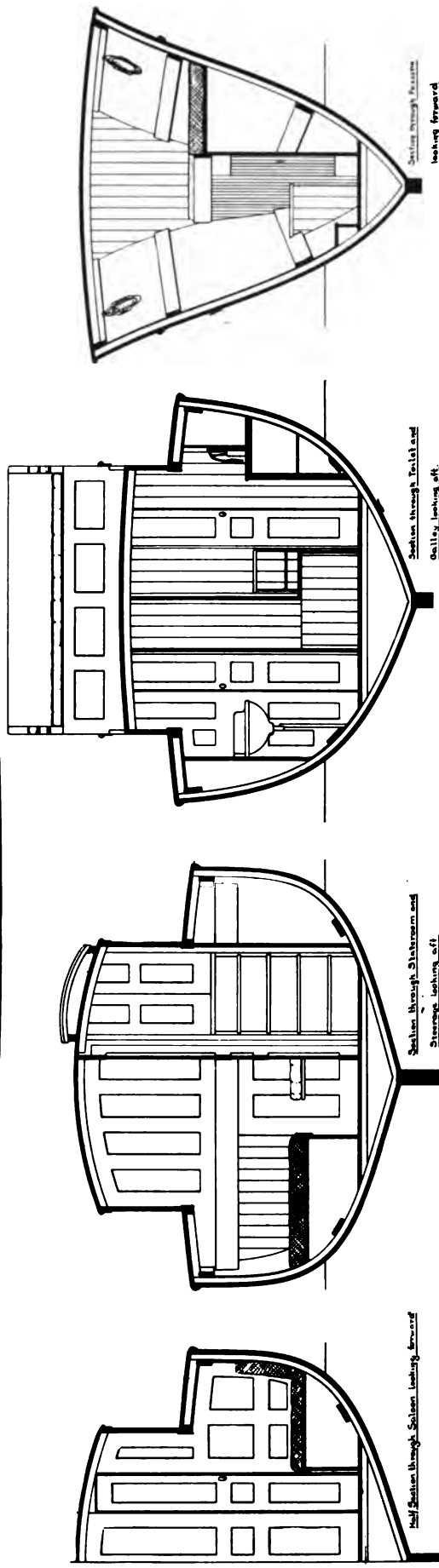
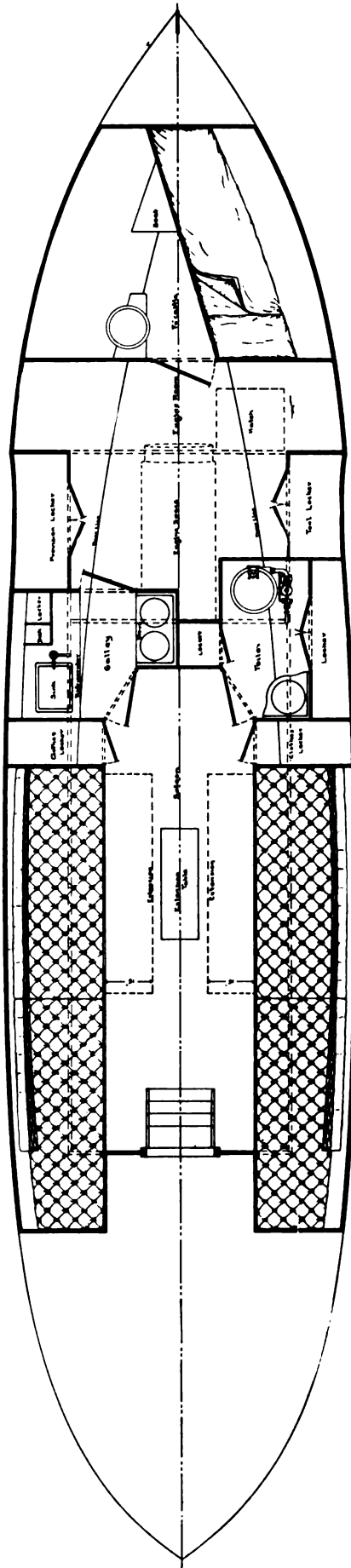
| | |
|------------------------|------------------|
| Length o. a. | 25 feet 9 inches |
| Length w. l. | 25 " 0 " |
| Breadth | 11 " 6 " |
| Draught | 2 " 8 " |
| Height at bow..... | 4 " 6 " |
| Height at stern..... | 2 " 2½ " |
| Freeboard, least | 2 " 9½ " |
| Headroom | 5 " 4 " |
| Sail area | 725 square feet |



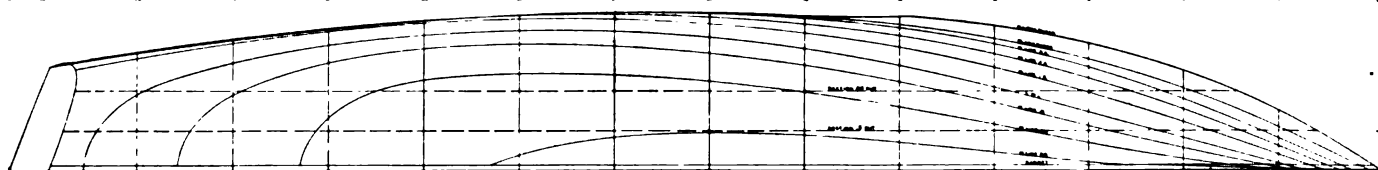
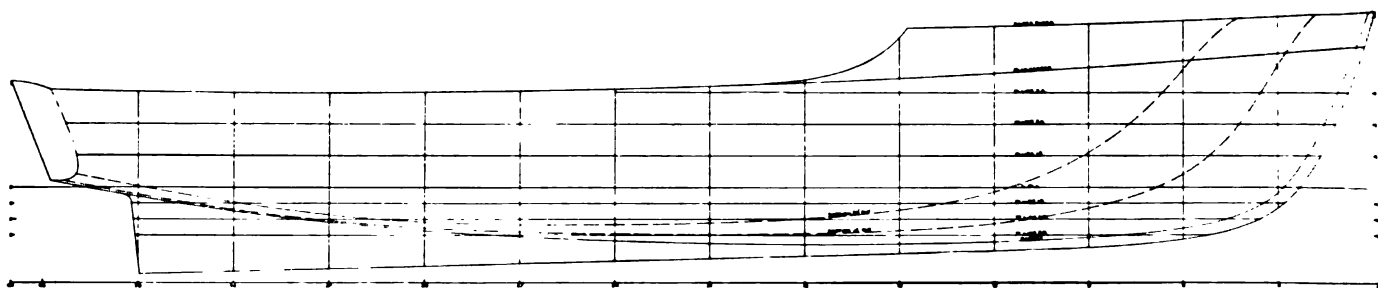
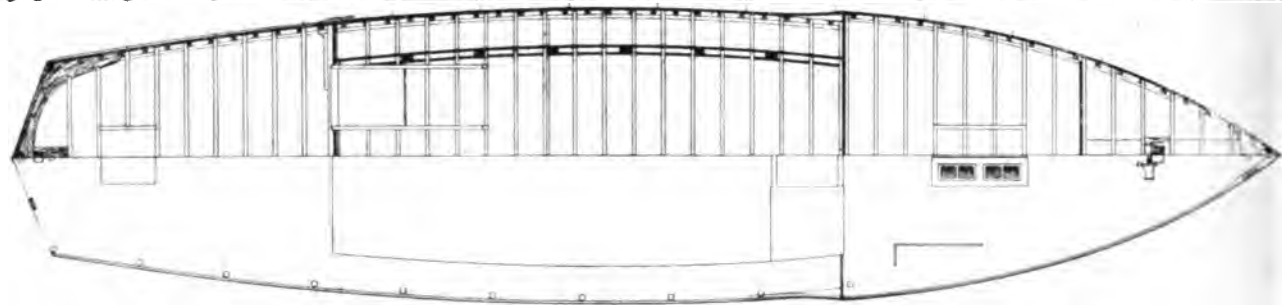
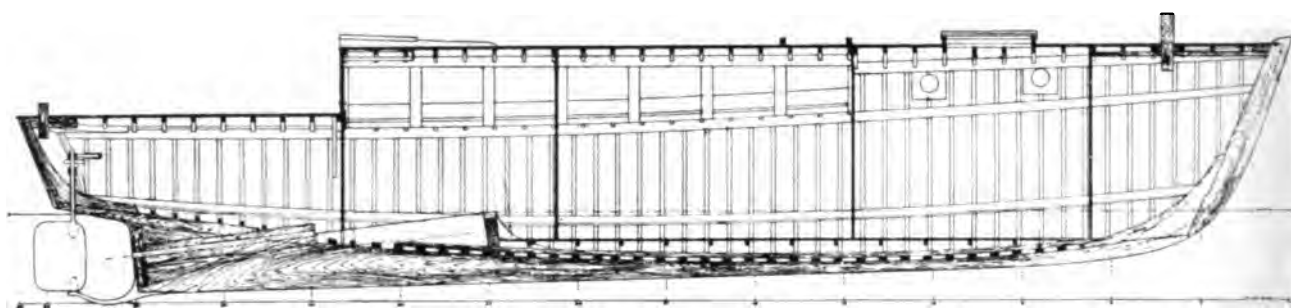
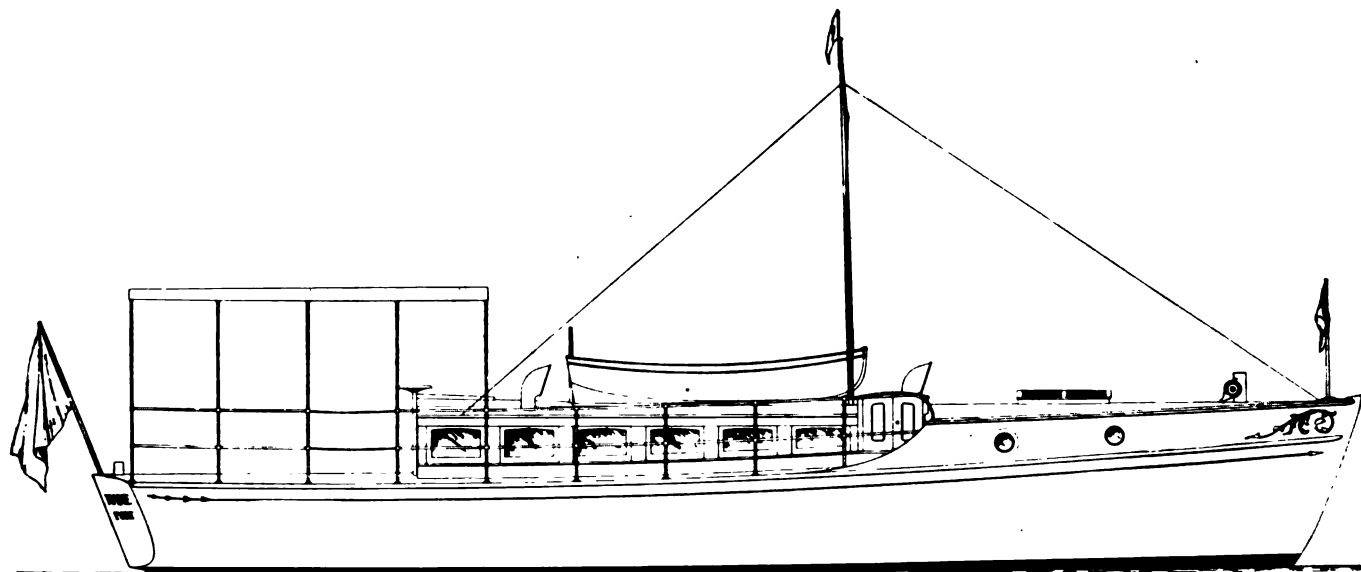
Views of the Model of the Twenty-Five-Foot Cabin Catboat Sea Hound



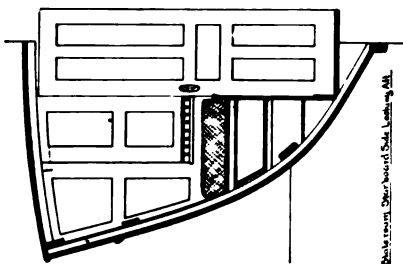
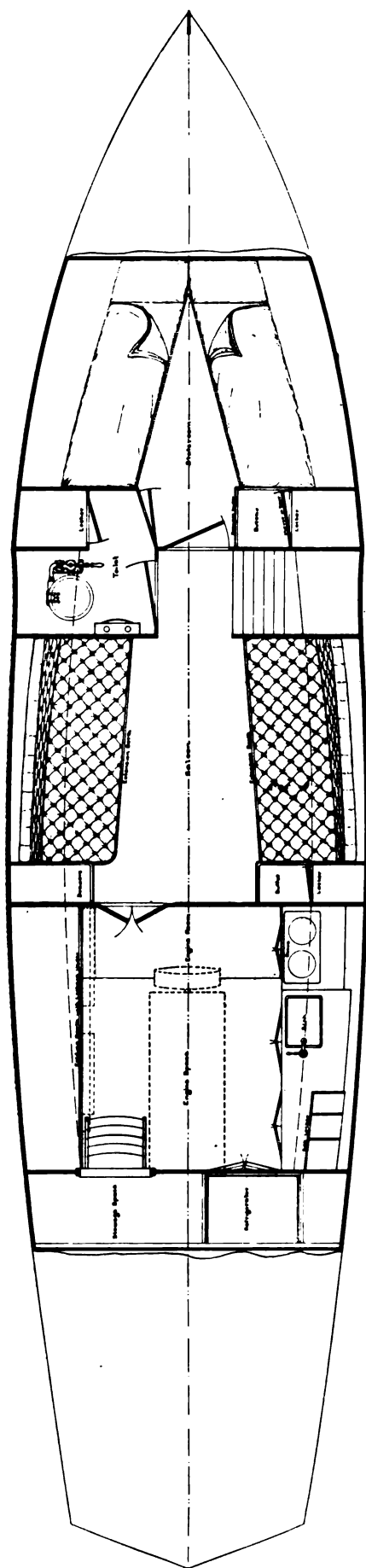
Designing Competition. Plan of Forty-Footer (No. 1), Submitted by Mr. Fred. S. Nock, East Greenwich, R. I.



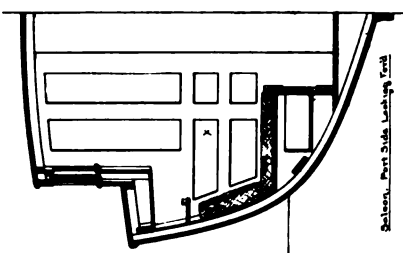
Accommodation Plans of Mr. Nock's No. 1 Design



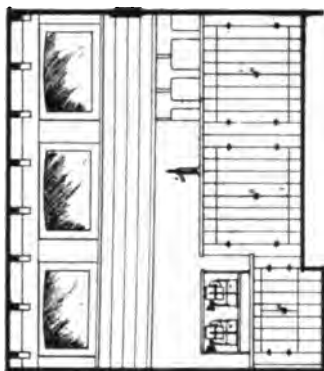
Designing Competition. Plan of Forty-Footer (No. 2), Submitted by Mr. Fred. S. Nock, East Greenwich, R. I.



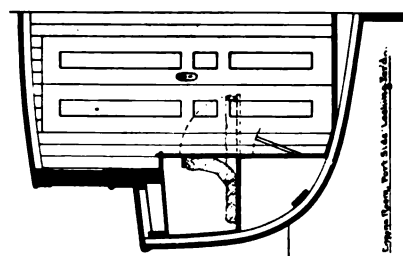
Fore-cabin, Starboard Side, Looking Aft.



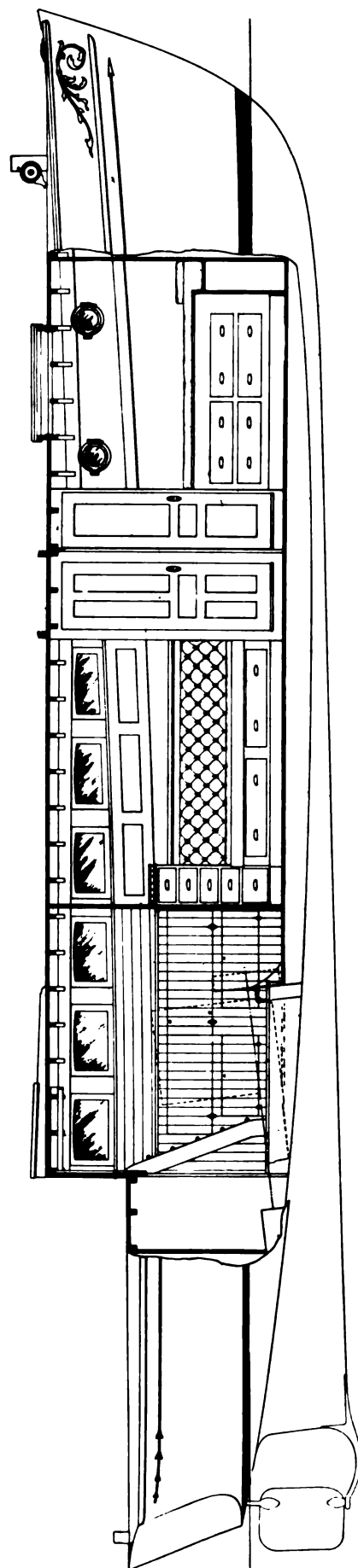
Main Cabin, Port Side, Looking Aft.



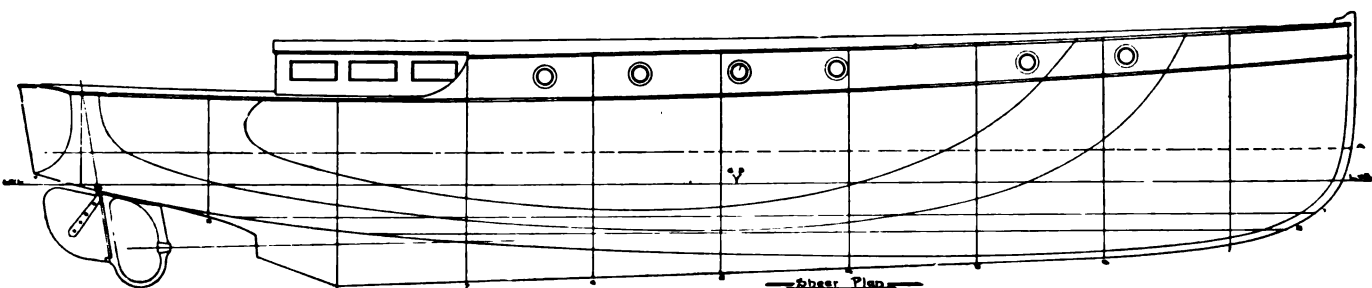
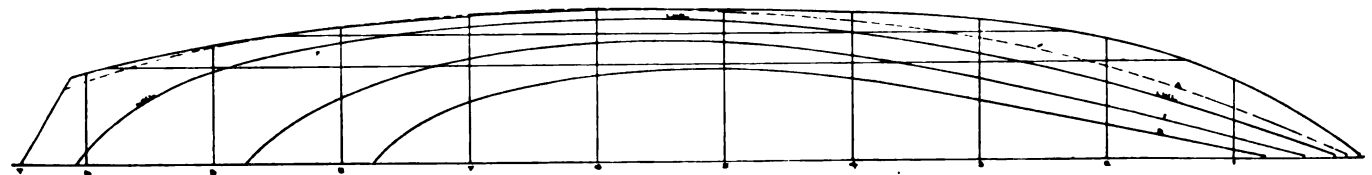
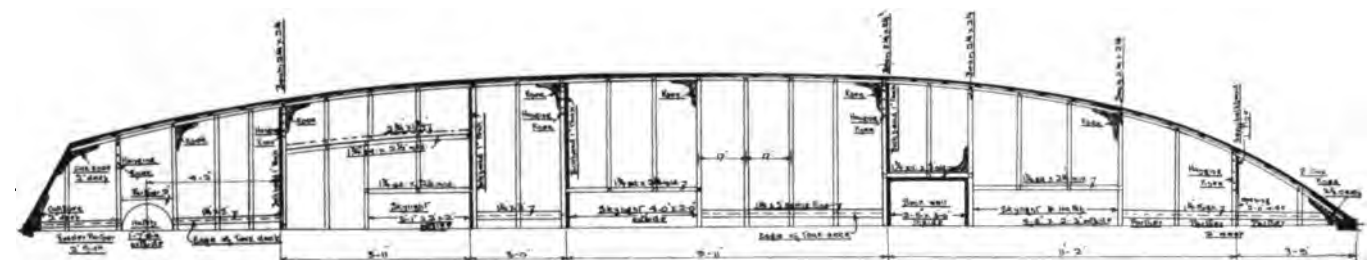
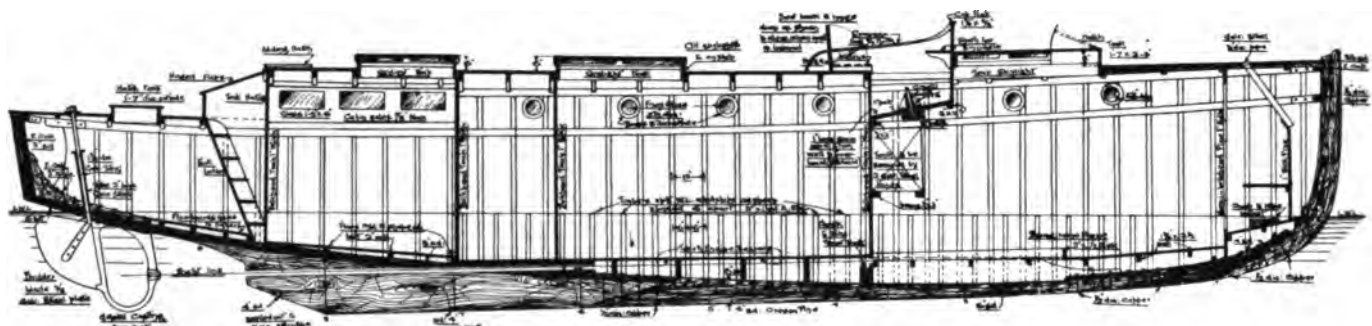
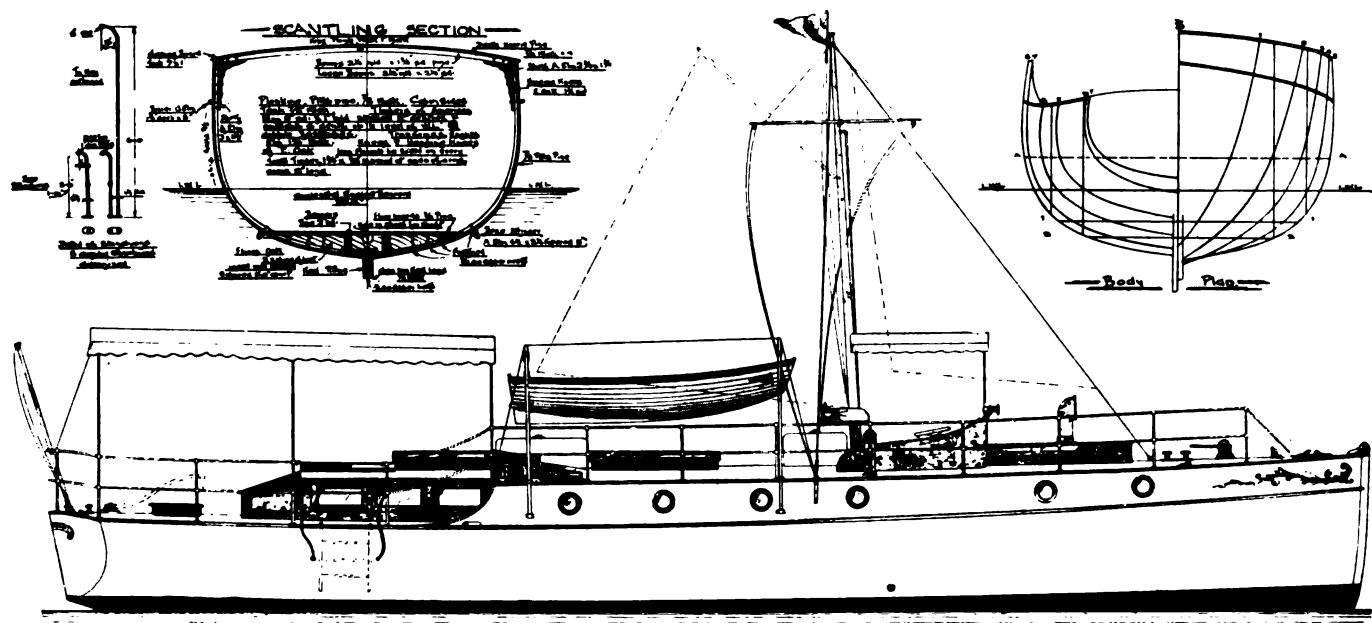
Engine Room, Starboard Side, Looking Aft.



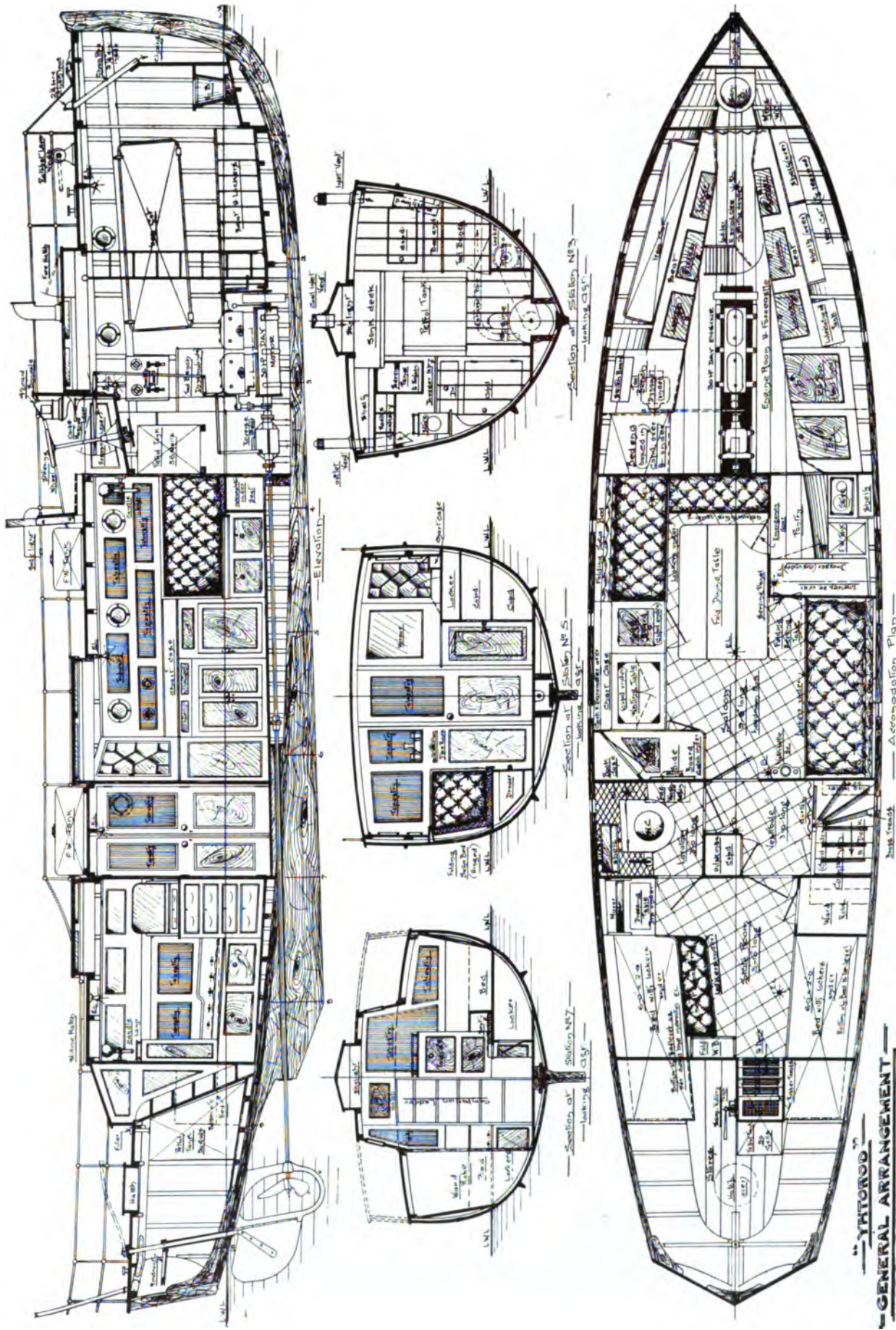
Aft Cabin, Port Side, Looking Aft.



Accommodation Plans of Mr. Nock's No. 2 Design



Designing Competition. Plan of Forty-Footer, Submitted by Claude S. Penny, Southampton, England



Accommodation Plans of Mr. Penny's Design



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 1 Hudson St., N. Y., U. S. A.



ACROSS THE ATLANTIC IN A POWER BOAT

A NUMBER of men have been writing to ask if it can be done. It certainly can, as it was done several years ago, when a small launch called A. A. Low, fitted with a kerosene engine, made the passage in thirty-six days. It is simply a question of a large boat and small power, so that sufficient fuel can be carried. It is nonsense to talk about crossing the Western Ocean at high speed in a small boat. High-speed means a large fuel consumption, and that means a bulky, heavily loaded boat. The maximum speed at which the passage can be made and fuel carried in a small craft is 10 knots. But it must be noted that a boat to maintain 10 knots for a passage of 3,000 miles must have a much higher light, fine-weather speed. It is exceedingly unlikely that she would meet with continuous smooth water and fine weather the whole passage, and therefore would be making for a portion of the time less than 10 knots.

We have learned from our experience in the long ocean races that the heavily loaded vessel at the start is cut down considerably in her speed, and that it is not until she has consumed a large portion of her load that she comes up to her maximum, and that head weather knocks the best of these craft down from a third to half. A boat that will make eight in the smooth, or with a following sea and wind will only do four if pushed into head weather.

It might be possible, by judiciously picking the date of the start, to get a fine chance all the way across; but it is safe to count on at least one-third head weather on a Summer passage across the Western Ocean.

The best course is the steamship track; the Southern track until clear of the Banks and then well to the North, so as to shorten the miles. Careful navigation is essential to success; the boat should be kept as close as possible to the path so as to save mileage. This is not always possible, but a good man at guessing what is coming a day or two ahead will enable you to have a bit of leeway when the wind shifts nasty.

The best sized boat to make the trip in would be one about 40 feet over all, and fitted with an engine of 10 to 12-h.p. This boat would have a speed in smooth water light of 7 knots and loaded six. She would take, if navigated properly, 500 hours to cross. Such a boat would be able to carry the necessary load of fuel and stores without worrying, as her length would enable the storage to be well spread. She would need to carry 1,250 gallons of fuel, weighing with the tanks, piping, etc., approximately 5 tons. Four tons of this should be tanked below, and the balance on deck. With this amount of fuel she would have reserve enough to face any Summer stretch of bad weather. The fuel should be stored in steel cylinder seamless tanks, such as those made by Janney,



Dixie Jr., 20 Ft. O. A., 45-65-H.P. Sterling Engine. Designed by Tams, Lemoine & Crane and Guaranteed to Attain a Speed of 35 Miles per Hour

Steinmetz & Co. These tanks are the only safe tanks to have at sea. She should be equipped with an independent engine to run the bilge pump, air fans, and electric light. Two absolutely necessary measures are, absolutely leakless tanks and perfect ventilation.

The propeller should be well under her and the rudder if possible hung outdoors, where it can be kept at all times under inspection and be readily got at for repairs.

A short mast to carry about 300 square feet of sail in jib and trysail, with a small riding mast and sail to step aft if head to the wind, should be carried. A stout rail fore-and-aft topped by a life-line is necessary.

I would also advise a stout 3-foot bowsprit rigged with a sheave for handling the anchors and warps. Also a heavy towing bitt forward and one on each quarter aft. All openings except the companion should be closed with screw plates. The companion should have slides, not doors. Cockpit, if any, small and shallow, weather screens fitted round binnacle and helmsman's position.

Is there any advantage in twin-screws? is asked. No. You will get approximately the same speed with greater consumption of fuel, and your propellers will be less advantageously placed to give an effective drive. The only possible advantage is in having your power in two units instead of one, and being able to employ one engine if the other breaks down.

Not less than sixty days' stores and water should be carried. The water in at least two separate tanks. One quart a day per man is minimum allowance, but two is better. A crew of four would be sufficient to keep the boat continually driving.

In conclusion: A properly designed, well-built, equipped and stored craft, if manned by a skilled and hardy crew, can easily make this passage without encountering any dangers excepting those that are always present in power-boat cruising. The preparation is the first principal thing, and the second, intelligent and skilful commanding and navigating. But don't start off half ready, and with a crew of dubs and skulkers. It takes men to make a passage of the kind; men who can stand up and take whatever comes with a smile.



A Rudder Swallow and Sea Bird at Christchurch, New Zealand

But above all, don't start without an ample supply of food for at least sixty days, and read this clipping before figuring out your water supply:

"Drifting helplessly in a calm many miles off the Gulf of California, the schooner Alsen, Captain Jose Rosa Villaviencia, which cleared from Ensenada December 18th, was found on February 10th with the master and crew of three dead. It is believed that the Alsen was blown far to the South and then becalmed so long that water gave out and the crew succumbed."



AT CHRISTCHURCH

AMONG other places where THE RUDDER has a large following of enthusiastic sailors is the city of Christchurch, New Zealand. Many craft have been built in that locality, and the photograph shows two of these, a Swallow and a Sea Bird, anchored in that harbor on opening day in December of last year. This interesting snapshot was sent in by Mr. H. B. Stansell, an old reader and valued correspondent.



Oregon Wolf, Fastest Boat on the Pacific Coast. A Speed of 43 Miles per Hour is Claimed



After Dinner

A HAIL FROM THE WEST COAST

PLEASE find enclosed money order for one year's subscription to THE RUDDER.

I was extremely interested in your account of your passage to Rome in the *Sea Bird*, and had no uneasiness about your making good, having had several years at sea in sail myself, most of which time I put in the fish trade from Newfoundland to Mediterranean ports, during which time I was in two vessels that made fine passages. Leaving the Labrador coast in 1903, about the middle of October, in a Welsh schooner, we made a 12-day passage to Gibraltar, arriving a couple of days ahead of a vessel that sailed several days ahead of us, and which was practically a sister ship. We were hove-to for twenty-four hours once on the way across, the weather becoming too heavy to run her. I also made a 15-day passage in a London ketch from Bay Roberts, Newfoundland to Exeter, England. We carried a crew of four all told, the master, mate, A.B., and cook, myself being the A.B. I was about seventeen at the time, and put in many a lonely watch at the wheel in all kinds of weather, the skipper spending (I regret to say) most of his time with the bottle at sea.

I often think of the old saying, "There's a sweet little cherub that sits up aloft and looks after the life of poor Jack," for many a dark night running in bad weather it has taken all my attention to steer her, without keeping a lookout as well, and us ploughing along in the track of liners, without side lights, or having any handy in case of need.

I have left the sea as a profession; but my ambition is to own a tight little yacht like *Sea Bird* and do some long cruises some day.

If you get sick of an old shellback's chatter, just drop it in the waste-paper basket.

Eight bells, and all's well.

Wishing you, and THE RUDDER every success,
Cumberland, B. C. FRANK SHAW.

CATBOATS

As one of your readers I am much interested in the result of the discussion over the Inter-Bay Catboat match

sailed during 1910 and reported by Winfield M. Thompson. The question that then arose appeared to be whether the professional designer could or could not turn out a faster and better all-round boat than the rule of thumb practical builder. In the November number of THE RUDDER, 1910, the lines were published of Mr. C. D. Mower's *Virginia*, and he there stated that she was coming back the next year for another try. Now *Virginia* is a nice-looking boat and evidently well thought out, and I for one would like to know did she come back and make good. It is requested that that prince of writers, especially on catboats, Mr. Winfield M. Thompson, be good enough to give us an account of the race for 1911, and drop for a while the gasoline catboat in favor of the old windjammer.

Victoria, B. C.

CATBOAT.

IN PRAISE OF MR. ATKIN'S ARTICLE

IN your February issue of THE RUDDER, I notice an article on "How to Build a Twenty-Foot Power Cruiser," by Mr. Atkin, which I think is worthy of mention. The author is to be complimented on account of the clearness of his descriptions and cuts, making it possible for a person with very little knowledge of boat-building to "start something." The details of the cost is a valuable addition to a well-written article.

Syracuse, N. Y.

RICHARD JOHANKNECHT.

* * *

I WANT to express my warm appreciation of Will Atkin's article in the February RUDDER on the building of *Sea Bird*. The plans and instructions are not only the simplest and clearest, but the boat itself is so attractive as to make a most notable addition to the long line of power boats afloat in all parts. Practical plans such as these from a naval architect, who is also a practical boat-builder, give a confidence as to actual cost and results which must prove of great value to all concerned. I expect to meet many *Sea Robins* while cruising this Summer.

H. EDWARDS-FICKEN.

• • •

SEA BIRD QUESTION

HAVING read of your remarkable trip in the yawl *Sea Bird*, and having always read THE RUDDER, call your attention to some *previous* remarks of yours in earlier editions as to her actions with centerboard, also with keel and outside weight. Could you let me know if your experience of last trip confirms the remarks as to your criticism on the outside ballast, and if you think you would have fared better with a centerboard on the last trip? I am building a 25-foot V-bottomed ketch for outside work, and your opinion would, in view of your recent trip, interest me very much.

A CONSTANT READER.

* * *

[I am still of the opinion that *Bird* with centerboard and inside ballast was easier in a seaway than she is with keel and outside weight. When heavily loaded, carrying four hundred pounds on her deck and over a thousand inside, exclusive of weight of crew, she behaved beautifully. I don't recommend centerboard boats for deep-water voyaging; they are too apt to leak, the trunk being a continual source of weakness.—EDITOR.]



First Page of the Daily Paper at Horta, Azores, Containing Review of The Rudder

PRODUCER-GAS FREIGHT AND TOW-BOATS

THE article on this subject appearing in your issue for February is open to criticism which we are sure you will welcome, as being of possible interest to some of your readers.

For the class of boat to which your article refers, steam is to-day, without question, a "back number"; but we would protest against your choice of steam engine in the comparative figures given. Would any one in their senses put into a boat in this century, a *single-cylinder non-condensing steam engine working at 100-lb pressure*, and using from 5 to 8 lb of coal per h.p. hour? You appear to have allowed 5 lb of coal per h.p. hour in the fuel costs quoted; whereas a modern C. S. C. engine would consume about 3 lb, including standby losses; thus reducing the fuel bill from the \$3,000 mentioned to \$1,800 per annum, with coal at \$4 a ton of 2,000 lb.

The cost of running any boat depends, of course, chiefly upon the price of the fuel available, which again varies with locality. Taking your 100-h.p. boat, burning coal costing \$2 per ton of 2,000 lb (a price at which suitable coal can be obtained in some parts of England and on the Continent of Europe), and allowing that her owners would have sense enough to install a modern C. S. C. engine, her annual fuel costs for 3,000 hours at 3 lb per h.p. hour would be only

\$910, against the \$3,000 quoted by you, or 50% greater than for your producer-gas engine.

You do not allow either an engineer or fireman for the producer-gas plant, stating that "a crew of two is sufficient for a gas boat," which means that either the captain or the "deck hand and cook combined," etc., of the engine. As we know the captain *would not* take on these duties, the other gentleman *would have to*; as you do not claim complete automatic operation for your gas plant, and \$600 a year seems a low rate of wages for a man who is willing and capable of performing efficiently the multitudinous duties allotted to him. We should like a few such "handy" men here, as the average Chinese cook in British Columbia gets higher wages without the risk of being poisoned by the fumes from the producer, and without having to face the various perilous duties of a deck hand, whose life is not "all beer and skittles."

We think, however, a more interesting comparison lies between the producer gas and engines using what is mis-named, crude oil, and there is very little difficulty in showing that the latter scores all round. The oil used is, of course, what is known in the trade as "Fuel" oil, which costs, on the coasts of America, from 1½ to 3 cents a gallon delivered in bulk.

By using engines of the well-known Diesel type, the troubles inseparable from producer-gas plants are entirely eliminated; considerable space can be saved, and a much more reliable plant results. These engines have no ignition gear, vaporizers, carbureters, or standby losses, and can be started immediately. The climax of safety is reached by such an engine, and not by the producer-gas plant, which is always liable to fatally poison any one near it, and has in fact frequently done so.

The guaranteed fuel consumption of a 100-b.h.p. Diesel would be 0.5 lb b.h.p. hour, its actual consumption at full load being from 0.45 to 0.47 lb per b.h.p. hour. Taking the 36-h.p. Wolverine-Galusha combination mentioned on page 90 of your February issue as a basis of comparison, and oil at 2½ cents a gallon, it will be found that the cost of fuel per day, if the Diesel had been installed, would have been 60 cents against the 85 cents found to be the cost of fuel on the producer-gas boat. The initial outlay for machinery would not have been greater, and the space occupied by the producer would be available for other purposes, the engine occupying the same space as the gas engine. There is certainly less to go wrong with the Diesel and therefore greater reliability, and for equal power, and the same distance between fueling stations, the further net saving in fuel space with the Diesel boat is about 57% over coal, as 50% less fuel has to be carried, and there are 38.6 cubic feet to a ton of oil against 45 cubic feet to a ton of coal, or 14% less space required per ton.

Taking the Boston Harbor gas tub referred to on page 91, the Diesel can certainly improve upon your figures. The total first cost would be the same for a 50 by 13 foot by 5½-inch boat fitted with a 100-b.h.p. directly reversible Diesel, the complete weight per b.h.p. of which would be exactly the same as given for the producer-gas set, viz., 220 lb. The Diesel fuel cost would be \$412 per annum against \$600 for the gas boat, and the "handy" gentleman before referred to would have much more time to devote to cooking and

deck duties than when he has to look after the producer-gas combination; besides which his life insurance premium would be less.

The Diesel is much more to be preferred than a gas boat, and progress during the last few years shows clearly which has the better name, as there are certainly in operation fifty Diesel-driven boats to each one propelled by gas, and the ratio is increasing daily in favor of the Diesel.

We cannot understand your statement that "the gas boat can go from full ahead to full astern in a surprisingly small fraction of the time it takes to do the same operation by steam," as, if steam can claim one point over any internal-combustion engine it is that of flexibility.

Yours truly,
HEAPS ENGINEERING CO. LTD.
Vancouver, B. C. F. A. Yerbury, Gen. Mgr.

* * *

[We didn't state that "the gas boat can go from full ahead to full astern in a surprisingly small fraction," etc.; the manufacturers of the article in question did that. Read the article again and note the quoted paragraphs.—EDITOR.]



THE SHIP AS SHE IS PAINTED

RE. the education of the public in affairs nautical, there is on the curtain of a city theater, a painting of a sailing scene, which might induce any boy to run away to a farm. Said painting represents a vessel without a sheer, or badly hogged, with a remarkable concavity for a few feet abaft the stem, sailing in a wind, to judge from the sea, on the port quarter, with the yards braced for a wind on the starboard quarter, and with a list suitable for a vessel in ballast with a wind abeam. The foretopmast staysail is full, although entirely blanketed. The main course and cross-jack are furled instead of having weather clew only hauled up. The larger bow wave is on the weather instead of on lee bow.

It is a moonlight scene and the side lights make brilliant paths without any interruption, due to different angles of reflection of the waves. Flags or rags are flying from fore and main trucks, although to



Land Boat Adapted from Rudder Ice-Boat by Mr Ricardo Soriano, Paris, France



Another View of Land Boat

judge by the full moon the sun is at least four hours below horizon. The vessel has large single topsails and very small topgallant sails, which latter are being clewed up, evidently to convey the impression that the crew are awake or on board or something of that sort.

While the masts are well open, the bowsprit points directly abeam, evidently to show that the vessel has a curve to her center line so a port helm will not be needed.

Below the picture is a caption to effect that it is copied from a painting in the collection of a noted dry goods store.

I judge that the vessel was designed by the tailor and rigged by the milliner for said firm; but even with these strong inducements it seems a shame to put such a hideous abortion before a public, some members of which may be forming craft for a future generation, and should be surrounded by works of art only.

Critically yours,
R. E. BARRY.

* * *

[The ship was evidently painted to illustrate some of the sea stories in the magazines. I would like very much to have the address of the makers of the side lights shown in these marine moonlight-midnight jokes. There would be no excuse for being run down with such brilliant lamps flowing quarts of red and green effulgence over the heaving sea ahead.—EDITOR.]

ETHICS OF POWER-BOAT RACING

"**T**RUTH is mighty and will prevail," probably accounts for my suddenly acquired prominence in the power-boat field and the interest shown by many thousand amateur boatmen in my championing the inauguration of an era of strictly amateur power-boat racing. After briefly sketching the cause of this controversy, I will present both sides of the case and endeavor to show how the amateur and professional can be of mutual assistance and yet be separately classified in the racing field.

Sent as a delegate to the late meeting of the A. P. B. A. (I almost said obsequies) over which we will draw the mantle of charity, I next attended a meeting in a similar capacity, of the Hudson River Yacht Racing Association, composed of twelve representative power-boat clubs, eight of which are members in good standing of the A. P. B. A., according to the secretary's 1911 year book. In view of the widespread confusion regarding racing rules due to the (annual!) proceedings of the A. P. B. A., the Hudson River clubs passed a resolution calling for the appointment of a committee on racing rules under which their regatta committee could hold inter-club races.

This story was sent to the newspapers along with the reasons therefor, which necessitated the mentioning of several fool-things done at the meeting of the A. P. B. A. Immediately the teapot bubbled, self-appointed champions of the manufacturers boiled with indignation as they fawned for (advertising) favors yet to come. With the ferocity of a nibbling duck one of them rushed into print to refute this heresy—and there acknowledged to everything which had been said—furthermore promising that henceforth the A. P. B. A. would be very, very good.

Having been asked the question "How I would separate amateurs from professionals in races?" I can only refer to the definition given by the Standard dictionary of the two classes, which is so clear and comprehensive that it seems an impossibility to confuse them unless one arbitrarily calls black, white.

Amateur boatmen are those who follow this sport for pleasure and recreation and who do not make their living from the sport or the sale of articles connected with the sport; usually they belong to clubs whose members are nearly all in the same classification. These clubs, many of them can scarcely pay their yearly expenses and all of them are in financial difficulties. Yet they manage to have races and donate prizes to the winners of races. I would say that every first-class power-boat club in the country expends at least \$500 per annum to pay the expenses of their regatta committees. It is these clubs which are the real foundation of the sport and to them and their members must be given the credit for creating and maintaining the interest in the sport and for its enormous increase.

Engine manufacturers, boat-builders and designers

are professionals per se; to say they are not is to write oneself a fool or a liar; from the clubs and individuals they derive their livelihood; for every little repair or accessory the amateur has to pay, and he even has to pay an admission fee at a power-boat show to inspect paraphernalia which he is solicited to purchase. *Suppose* a department store attempted to charge its patrons an entrance fee; the question answers itself. The manufacturer gives nothing towards the sport; as a rule he considers the public in the light of a milch cow, divinely intended for the support of himself and parasites; and until this year the amateur boatmen have allowed themselves to be thus milked.

Not only does he do all this, but should a race be won by a boat which he has designed or whose engine he has built, he gathers all the glory to himself; nothing is said about the pilot, engineer or owner, either or all of whom may have spent sleepless hours to win the race. But in the next issue of some trade journal by turning to the advertising section one may read; "Punk engine, built by the Punky Engine Company, was installed in the Dill Pickle, which won the Sewer Pipe Race at Punkville last month. Moral: buy a Punk Engine." This is a sample of advertising skill which may be culled from the pages of any trade journal. Verily the average manufacturer's generosity greatly strains his heart action.

Taking all this into consideration, is it any wonder that the amateur is disgusted and inclined to make rules of his own which will eliminate from amateur races the professional leech who continually cries for more and gives nothing in return? Who like a cuckoo steals his nest; who reaps where he did not sow? Outside the mere pleasure of winning or contesting in an exciting race the only financial benefit derived goes to the manufacturer, for the amateur winner of a race does not sell an engine or a boat from the result of that race, but the manufacturer may.

Consider the following handicap now imposed upon an amateur which he is expected to overcome: An enthusiastic boatman hoping to win races purchases a boat and engine which he learns to run in his spare moments; he enters the boat in a race supposedly amateur; there he meets as an opponent a boat and engine from the factory where he purchased his own, manned by a mechanic from the bench and steered by a professional pilot. Such instances have occurred so often in the past two years that they have ceased to be exceptions and become the rule. In the name of all the amateur races which have been run from the Olympian games down to the Harmsworth Trophy, has there been anything meaner or more rankly professional? Does not all this tend to discourage the racing of boats, lessen the interest therein and ultimately injure the business interests of the manufacturer?

Without being considered as holding a brief for the amateur boatmen or laying myself open to criticism as offering unasked advice to prosperous business firms, with the single desire of seeing the amateur and professional each get a square deal, I suggest the following

REMEDY

There should be two distinct classes: amateur and professional. If needs be, one central governing association could cover the country and represent the amateur clubs and manufacturers. It could make rules under which regattas might be held. In this respect let us take a leaf from the Automobile Association which, from the manufacturers' standpoint, has successfully solved this problem. Two ways are open for holding professional races or, better still, a combination of the two.

The first is to hold free-for-all races at ten available cities of the country and give as prizes, cups and money, for the winners of power-boat races; prizes could be offered for speed, endurance, economy and other points decided on.

Another and better way is to hold free-for-all races and offer prizes, the same to be held under the direction of the regatta committees of the twenty best power-boat clubs in the country. A combination of these two suggestions would prove ideal. At these races the manufacturer could exhibit his wares and pick the crew to demonstrate his product without any question being raised regarding availability. The expenses of these races would be paid for by the manufacturers taking part, or, if so desired, from the surplus which the National Association of Engine and Boat Builders is said to have in its treasury.

The amateur races should be for strictly amateur boatmen, those who have not competed or are not eligible to compete in the free-for-all class. These races could be run under the supervision of the racing

association and managed by the regatta committee of the club where the races are being held; these prizes to be other than money prizes or its equivalent.

Some arrangement like the above would establish a better feeling all around, there could be no cry of favoritism or discrimination on the part of the regatta committees. The manufacturer and the ultimate consumer would approach each other more closely and without jealousy. A class spirit would be developed of infinite benefit to both. And from this good feeling the manufacturer would be the beneficiary. For, after all, the ultimate consumer can do without the manufacturer, but the latter cannot do without the former except by closing down his business.

It would also be a generous act on the manufacturer's part and a graceful tribute to the amateur clubs for the National Association to offer one prize race to each of the twenty best clubs in the country, which races must be competed for by amateurs only. In which races every amateur requirement be observed, including especially the rule that every boat-owner sail his own boat during a race.

With the classes thus defined I would look for an enormous increase in the entries by amateurs to such races; they would be pitted against each other and not against professionals, and not be compelled to go into a race with the feeling, "Well, I will lose anyway." All of which good feeling and increased interest would redound to the benefit of the manufacturers.

As to the rules under which such races could be run, I would say that a dozen well-known amateur boatmen are now at work with this idea in mind; the result of their labors and the conclusions at which they arrive will be given at a later date.

COMMODORE SELDEN,
N. Y. M. B. C.



ROUND THE CLUBHOUSE FIRE

THE weather proved so soft and sunny this Winter that I did not think we needed a fire, but having a lot of junk and tag-ends to get rid of I'm lighting up for a single watch. The coming season so far don't look very promising, but things will probably work out a bit with Spring and continue on into the usual round of pleasures. Everything ahead looks thick, but after all it may be only a film of fog that the first good Sou'wester will blow over the horizon and beyond. So cheer up and get to work. Let's get something going just as we used to do. Last Summer while I was away they mishandled the Bermuda races and let them go by the board, and I understand the historic Marblehead was also a fizzle. There is no excuse for making a failure of the last, as it is a regular lazy man's race, just an easy jaunt, and no hardships or starvations. It is a splendid opportunity for the new man to get broken in to staying out all night on the deep blue sea. These races have done a great deal

for the sport and would do more if yachtsmen would take a real abiding interest, such as they did in the good old days.

* * *

A number of people are writing to me about crossing the Western Ocean in a power boat. The majority who talk about making the passage seem to know as much about the sea as I do about mountains. The making of the passage, if you have the boat, and the crew, and the stores is nothing: it is no more dangerous than it is to sail up Long Island Sound or down Lake Erie; but if you have the wrong boat, and an ignorant or unskilled crew, not sufficient stores or water, it is a foolhardy and foolish thing to do or even to attempt. You may get across and you may not, but even if you do succeed you will have an exceedingly uncomfortable and distressing time. In a properly designed and built boat, with an experienced navigator in charge and a first-class crew, with plenty of

food and drink, you can enjoy yourself and have a pleasant trip, one that will give you health and knowledge—such knowledge as cannot be bought and won anywhere else.

* * *

In regard to power, there is every reason to believe that any of our good engines would drive the boat across without falling down; but it is not the engine itself that is the principal cause of failure to run, but the fuel and the firing devices. When you get out to sea and have the boat standing on end several times a minute and the fuel being shaken and swashed, the dirt trouble begins, and it is always present and always to be counted on to give trouble. The ignition is another factor. Water and salt, especially if warmed up, mean dampness, and dampness is the sworn foe of electricity. At sea everything is damp and the salt-laden air attacks and eats out the life of electric devices in no time. Those who have never experienced an attack of warm salt water cannot comprehend the rapidity with which this fluid exhibits its malignancy. In three days it completely eat up an electric device for illuminating a binnacle. It works like a slow acid. You must remember that in a small power boat, especially if she is driven, you are always in bad weather, so far as the supply of water coming aboard is concerned, and that a real dry day is like an angel's visit.

* * *

The best sign of the times and one which points to the younger generation still holding to our good old sport, is the number of small one-design classes that are forming and building. I have news of five so far, and hope there will be many more. Nothing ever was devised to bring men into the sport that has been so successful in its recruiting as the one-design. In many places it has been the salvation of yachting. Where it has failed, it has failed because the right sort of craft has not been chosen, and failing to give satisfaction they have disgusted or disheartened the new man and the sport has in consequence been dropped. Badly designed, cheaply built boats are a rotten investment. The boats to support the idea must be something that will not only sail but sell: they must have a fair second-hand value. That is the whole secret of success not only with one-design, but with all types of pleasure craft. The sport is maintained not by the man who builds, but by the man who buys the second, third, fourth, and fifth-hand boats.

* * *

I am glad to see that some of the power-boat people have had sense and courage to revolt against the outside control of the racing, and are going to put the making of rules and the management of the racing where it properly belongs—in the hands of those who race. I have preached this into your ears for years, but the deaf side has always been turned towards me, and in consequence the sport has suffered. You cannot combine business and sport, without sport suffering. You must separate sport wholly from the contamination of money-making to keep it clean, absolutely clean. I never have and never will object to men joining in the sport who make a living catering to its wants; but I have and always shall object and oppose their controlling or directing its fortunes.

These men should have sense enough to see that they damage themselves, by not taking and holding a neutral position, and allowing the racing game to be run by those who race, and who have no commercial interest in the winning of the events. Sailboat racing is to an extent free from this trouble, but it is rampant in power-boat racing. Unless it is at once checked and speedily eliminated it will surely kill the sport.

* * *

Another thing that ought to be stopped is this lying about records. It is the Association's business to put a stop to this humbug, and to establish a system of securing, verifying and recording speed records. Last Spring an English concern placarded the world with a statement that they had a boat that made 49 knots over the mile. I denounced the statement as a lie, and such it proved to be. When the boat was put over a measured course she could not make 39 knots. The statement was a lie on its face, yet it was swallowed by thousands of people, including the editors of technical and trade papers. One man gave me that as a reason why it should be accepted as the truth: that the papers had asserted it to be so. What in the name of the Six Softies does the average man running a technical paper know about such things? About as much as a parrot does about grammar. They simply repeat what they are told because they don't know any better. But an experienced boat-handler knows as well as I do that no man's unsupported statement in regard to the speed of his boat is worth a peppercorn. There is not a speed-boat record to-day that would stand in a court of law, let alone passing through a court of science. Records made around floating marks, unless such marks are constantly watched and checked from the shore, are wholly unreliable. I have never seen a course yet that could be sworn to be correct. Most of our courses are under-measured and this, I am sorry to say, is often purposely done.

* * *

As instance: a man came to me when running a race and said: "I would like to break the record tomorrow with my boat." I politely expressed my hopes that he would. He then calmly informed me that in order to do so he expected me to shorten the course to about seven-eighths of a mile. When I got through pitching the hot coals, he squirmed out from under, and explained that he understood it was the custom and that the committee of a nameless association had done it last year, and that in consequence his boat had broken the mile record, which fact had caused considerable jubilation and greatly advertised the afore-said association; all of which I afterwards found out was true. Now if we had an association controlling this—an association with backbone and muscle—such records would either be impossible, or if made and recognition sought, would be laughed out of existence, and the fakers who make them be rail-ridden out of the sport.

* * *

But it certainly is distressing to know that hundreds of men supposedly endowed with brains believe these statements, and what is worse repeat them as gospel. Men who look fairly human and intelligent believed that lie about Maple Leaf making 49 knots, and called me down for denouncing it as a fake; yet

these very same men, if I had told them the 100-yard record had been reduced to 8 seconds would have laughed at me. Suppose I had told you that the trotting mile had been clipped to 1:50, would you have believed it? No. Well just as reasonable to suppose that a horse could clip 10 seconds off the trotting record as that a 40-foot power boat could suddenly develop a speed of 50 knots. Did you ever hear of speed jumping up 33 $\frac{1}{3}$ % in one year, except through a radical departure in type and a complete change of the driving power? Think, think, before you accept such statements, no matter who issues them.

* * *

The publication of these false records does harm to every honest man in the game. It is unfair to the honest designer, the honest builder and the honest engine maker, and it disgusts and drives out of the racing the honest owner. What is the use of building, powering and speeding a boat if you do not get the credit for what she does, and have your honors filched by liars and fakers? For this state of things the associations and papers are wholly to blame, the first for not taking control of and managing these speed trials, and the papers for giving credit and publishing these fake claims, many times when they must know them to be false. Their excuse is that by not doing so they might offend an advertiser. Better offend all the advertisers than give public sanction to a false claim. A lie of this nature never helped any man; such falsehoods always come home to roost, and the man who utters and the man who passes current only loses by it in the end. We have always refused to print these false records, and will continue to do so, no matter who makes them, and in this stand I know we have behind us every honest owner, builder and engine maker.

* * *

A man said to me a few days ago: "In return for what you have done for yachting I suppose all yachtsmen give you a hearty support, and subscribe for your RUDDER." I replied, "Sit down and listen. You are an outsider and therefore free to ask such question without jeopardizing your standing as a man of sanity. Yachtsmen, like all the rest of mankind, are grateful from their upper lip to the waist-band of their trousers. They will put their hands on their hearts without urging, and into their pockets to buy rum or smoke, yes, but yachting publications—a few do, and those few, God bless them, stand by me like a storm jib. Listen to this, O friend, and judge. The Commodore of a club wrote and asked me if I would come to a function and speak to the members. I accepted, went, was away three days from work, had a good time and spent some money getting there and back. The Commodore told me the club wanted to reimburse me for my trouble and asked the amount. I told the Commodore that it was against my rules to accept anything for such services, and that I was only too glad to be with the club and do my little to help the sport along. He then suggested that I write a personal letter to each member and ask him to subscribe for THE RUDDER. He was sure a large number would subscribe. I wasn't, being too long at the game, but to oblige the Commodore I did. Result, over four hundred letters sent out: seven answers. Two officers subscribed, four wrote they were already subscribers, and one read brother's copy. The balance of the mem-

bers expressed their gratitude by taking no notice of my letter. But that is what I expected. In the last ten years I have given over fifty trophies to be raced for, and in only five cases do I recall the winner having written to thank me. It may be old-fashioned to thank a man for placing a trophy where it can be won, but it is no less an act of courtesy that shines like a sudden star."

* * *

I was greatly distressed to hear of the passing away of my old friend, A. Cary Smith. He had grown to be so large a part of the sport that it seemed like taking the sun out of the sky when he went. Full as he was of years, he can be ill spared, for he of all our designers was the very sheet anchor of good sense, and did more to block and discourage the silly rushes to extremes than any other man. Cary Smith was ever true to the sport and true to his own genius, and never allowed mercenary gain or the chance of cheap applause to lead him away from the sound, sensible course. What concessions he did make to fashion were made against his judgment and at the pressure of customers, and I think he invariably regretted having done so. In consequence he left behind him a splendid record and a fine fleet of boats. Not the speediest in the world, but unquestionably among the best. No man was ever backward in saying he had a Cary Smith boat; it was a proud possession. To-day there is no living man his equal in designing cruising vessels of the schooner type; in fact, he created and developed the present type, and no better vessels ever lay on a wind or left wake behind. I for one shall always miss him, and whenever I catch sight of a schooner yacht lifting her swelling cloths to the breeze my thoughts will go out to the wise, kindly man, whose joy was designing and building these beautiful fabrics, and who loved our great sport as you and I love it, and was never weary of saying so.

* * *

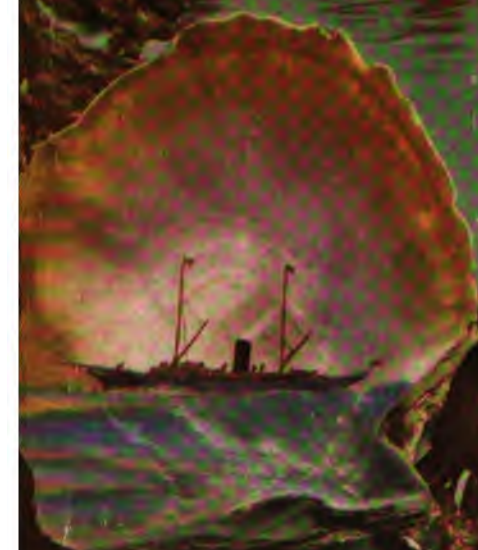
About two years ago I told you people that as soon as the Panama Canal was opened we would have a race from New York to 'Frisco, and if the Mugs or Kookies don't get me before the time comes, I'll get the thing going. But over and beyond the power race through the new ditch, I want to start a sail race around the Horn to celebrate the abandoning of the old route. My idea is to have a 'Frisco boat and a New York boat in it, the two to be the same design and manned wholly by amateurs. The boats could be built by subscription, and be sailed by the men from the clubs on the Atlantic and Pacific coast. This would be a real deep-water race, and create no end of interest and excitement. The distance is about 13,000 miles, making the longest race ever attempted.

* * *

Before closing I want to thank the Wilmington Y. C. of Wilmington, Del., for an honorary membership. This is a new club, but is starting off with a goodly number of members and a crew of energetic officers. The Point o' Woods Y. C. has also honored me; the membership being proposed by my old reader, Mr. Ryan, in an exceedingly flattering speech. Have these honors from some fifty or more clubs, and am hoping that some day they will reach the century mark. I admit that I covet them and that they are my most cherished possession.

THE RUBBER

Aug. 1912



MAY, 1912

VOL. XXVII

Nº V

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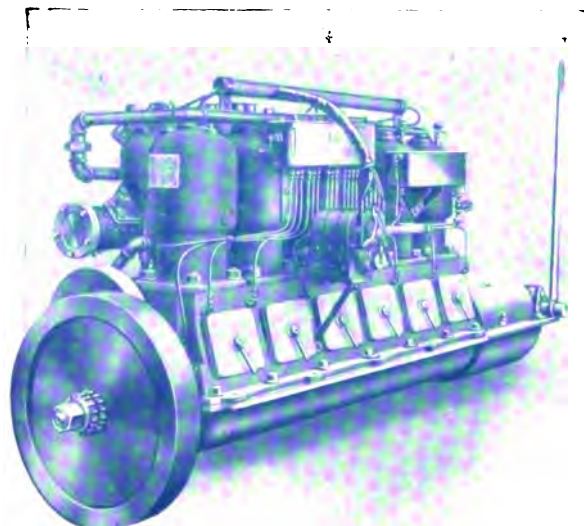
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The Rudder

Edited by THOMAS FLEMING DAY

Vol. XXVII

MAY, 1912

No. 5

FLIRTING WITH GASOLENE

THE POWERING OF SIZZLER

Winfield M. Thompson



HAVING described in THE RUDDER for October, 1911, my introduction to gasolene, and in that for February, 1912, the modeling, designing and naming of Sizzler, my first power boat, I purpose telling here in language as simple as may be my experience in selecting an engine. It is my hope that the amateur may find herein some helpful hints, while the seasoned—salt, I was about to say, but per-

haps, for want of a more exact term, "petroleur" would be better—who owns a power boat and has been through the throes of buying his first engine, may be reminiscently amused, if nothing else.

In my "Piljin's Projiss"—as Sairy Gamp would say—along the highways that lead to the Delectable Mountains represented by the ownership of an engine that fills the eye as a thing of perfection (before the season afloat begins) I fell into more than one Slough of Despond. I met the Giant Despair at various street corners, and Mr. Worldly Wiseman attached himself to me as to an old college chum, and persisted in advice until some stratagem or subterfuge enabled me to escape his kindly but unwelcome counsels. You will remember that in Bunyan's great and quaint work the siege of Doubting Castle was a long and hard one. It was the same with me. Indeed, Doubting Castle became a nightmare to me. One day I thought I had scaled its ramparts, and slain its keepers; that I was lord of the place. The next day I found myself outside its walls, despairing of ever seeing the last of it.

In plain language, doubts and perplexities beset me on every hand; and since these writings are in the nature of confessions, I may as well tell you the way of it from the beginning.

While carrying along at Southport, Me., the pleasant work of planning my boat, the lines of which appeared in the February RUDDER—my thoughts turned naturally to the question of power. I was a green hand, and realizing my limitations, was determined to approach the subject with an open mind, hear what most men competent to talk on it had to say, and then take my own course, according to my lights.

Not long had I pursued my purpose before I discovered that this field of effort is one in which men may see phantoms. After wandering in it a while the novice will jump nervously at every shadow. He will also find it hard at first to distinguish between shadow and substance. I am speaking now of the conflicting ideas that press on the newcomer in the sport of oil when he is called upon to select an engine.

The things he must decide for himself, in the midst of conflicting advice from men of many minds, are important. First there is the amount of power his boat should have. Next there is the kind of power—that is, whether from a heavy-duty engine of relatively low speed, or from an engine of lighter build and greater number of revolutions per minute.

Having settled the main points of power, weight and speed, he turns to the important one of ignition. Shall he have a make-and-break or a jump-spark system? Shall he secure his spark from a magneto or rely on batteries? Shall he employ high-tension or low-tension?

These questions shape themselves slowly with the beginner. At first he does not even know the meaning of many of the terms employed in the gasolene engine business. Men who know engines do not stop to think that they speak a special language, a kind of technical jargon, that to them is plain enough, for they

know the thing for which each term stands, but which is Greek to the beginner. Who among our seafaring fathers would have made head or tail out of such a statement as this: "I couldn't get any speed out of her because my needle-valve was plugged; then my spark faded away, she flooded, the firing-pin carbonized, and she ran hot on account of sawdust in a check-valve." Thus on, through a variety of ills. Wouldn't such talk have stumped the old lads of the sail? Surely it stumped me, and I am merely an imitation sailor. I had to grope along, however, with only a sailing man's knowledge of the subject I was attempting to master, and that was where the fun came in.

Naturally, being in the way of respecting printer's ink, I turned to the advertising pages of THE RUDDER for information about engines. Advertisements that had not held the slightest interest for me before, now became as strong as holy writ. I had extended my confidence to the engine man who paid for the privilege of saying his say in public about his product. He was in the position of a stranger at my door, introducing himself. If he made a good first impression, I would talk with him. If not, he must go on his way.

My perusal of the "ads" left in my mind but little



I Perused the Catalog

except the names of the engines advertised. I noticed one defect in the advertisements, from the beginner's point of view: They were not sufficiently explicit as to the type of engine, whether two-cycle or four-cycle; the speed in revolutions per minute, and fuel consumption. On the latter point I shall have something to say further on. Regarding the first, it must occur to manufacturers that the beginner cannot recognize a two-cycle from a four-cycle engine from a small picture. He must be told which is which. After some schooling I discovered that you can generally tell the difference at a glance, from the shape of the base, if nothing else. At first I did not know that, and in many advertisements that I read the manufacturer failed to enlighten me. Thereby he lost his first, and perhaps his best, opportunity of making good his introduction to me as a prospective buyer. The point is perhaps a trivial one; but I should have been delighted had I found an advertisement that stated, in plain, straightforward manner, the facts I wanted to get, like this, for example: "This engine is a two-cycle, two-cylinder machine, of 10-h.p., turning an 18-inch wheel 700 revolutions a minute when doing its best, and consuming at that rate two gallons of gasoline an hour. The cost is \$250." Such explicit statements would be something for the inquirer to start with, amidst the sea of advertisements that make only general statements, such as "This is the best engine on earth. If you don't believe it, write us for a catalog." It must be borne in mind that all engines look pretty much alike, on paper, to the beginner; hence the necessity, I should say, of the manufacturer who would catch the early customer getting down to specific statements without loss of time.

But to the narrative of how I got the engine: In one of the various hookers I had hired in the Summer of 1911, as narrated in the October RUDDER, was a small single-cylinder, two-cycle engine that gave eminent satisfaction. It was a fine little engine, running smoothly and steadily, so long as I fed it the Sacred Oil.

After vacation I started my engine pilgrimage with a quest for the men who made that engine. I found that the engine was a sort of side-line in an immense business. I marveled that a concern making implements in no way connected with the water should manufacture marine engines. Inquiry showed me that the engine business had been purchased; that the engine formerly had another name. This fact, and the grouping of marine engines with hay scales, and such bucolic articles, in the firm's great warerooms, gave me an unpleasant first-impression. I liked the engine, and the firm had a perfect right to sell anything else they wished. They were reputable people, and made a good article. But my sense of the proprieties pertaining to things maritime revolted at the setting in which the engine was placed. So I went away from the warerooms with my ardor for that engine somewhat dampened.

Now came Doubt No. 1 into my ken. It was a small, isolated, but nimble Doubt, and it kept me busy for a week or so. It kept saying to me: "You want 8-h.p. to drive that boat. Isn't that about the limit for a single-cylinder engine? Why not get a double-cylinder. They run a lot smoother."

Doubt No. 1 prevailing, I was led by him to pur-

aside—to “can,” in the argot of the White Way—my idea of a single-cylinder engine. This may be set down as my first step from the straight path that I had expected to follow to reach the Delectable Mountains of my fulfilled desire.

I now committed myself to a double-cylinder engine. It should be two-cycle, as the other was, and make-and-break, as that was also. “The make-and-break system is the only one for a man who is not mechanical,” I said to myself, none of the other Doubts that assailed me later having yet come around the corner.

So I started down to the agricultural implement warehouse again to see what they had to offer in a double-cylinder engine. They had one rated at 9-h.p., it having two cylinders of the same size as in my favorite engine. I looked it over, and asked the man a question—not a profound question, but a simple beginner’s question. I said: “With this mechanism does the explosion come in each cylinder at exactly the time it is wanted?” The salesman assured me that it did, and added: “This is one of the few make-and-break engines noted for perfect timing. In some of them the parts wear quickly, and the cylinders do not work together. Then there is trouble. In our engine all that is avoided by the strength and adjustment of the timing apparatus. You will see how heavy, and perfectly finished, that timing shaft is.”

This was eminently proper conversation in a salesman, but his words hardly had been uttered when a group of small lively Doubts came out from behind a stack of hay scales and gathered round me. They accompanied me out of the shop.

“If you are going to get a two-cylinder engine,” they said, “you have got to look pretty carefully into the matter of timing. There is only one two-cylinder, make-and-break, two-cycle engine made that is perfectly sure in its timing. That is made down in Connecticut.”

Having occasion to pass through the city where this engine is made, I stopped off and called at the factory putting it out. It was a fine factory, in charge of active young men. The engine was made with the greatest care, I could see. Its various parts were of the best of metals, finished by the highest-grade mechanics that could be hired. All this impressed me favorably. Then I asked a question: “Can you supply me with an 8-h.p. machine?” The reply was: “We make a six, in two cylinders, which really turns up 10, and we make a 10, which really turns up 14. Our engines are not overrated, as you will see.”

In my progress thus far I had picked up a few general ideas as to bore and stroke, and their meaning. The bore and stroke of the 6-h.p. seemed small, and those of the 10 large, for what I wanted. The sizes really were not exactly what I needed; still it was better, I had been told, to err on the side of too much power rather than too little, so I thought: “The 10-h.p. ought to send my boat along zipping. I will stretch the point, and take it.”

Just then a little Doubt who had been hiding behind me jumped out, perched himself upon my knee, and said: “How about gasoline bills, old scout? Aren’t you going to get in pretty deep with an engine of that bore and stroke? It sure will eat up the juice.”

These remarks not having been overheard by the engine man, I professed to be thinking. Then I asked particularly about the six. Would it surely produce 10-h.p.? The man could swear it would, but to make assurance doubly sure, the firm put out a machine built of the same cylinders as the six, but with larger intake valves, ports, etc., that they rated at 10-h.p., but which actually delivered 12. If I took that I could surely get nearly as much speed, and not as great cost of operation as with the heavy 10.

Here was another shift of wind, and by this time you will see that I was veering pretty well around the compass.

I looked the 6-10 over carefully. It was an elegant engine, and looked smart, in every part. “But,” said I, “I wonder if it is heavy enough for my boat. She has considerable displacement. I may have to bal-



“How About Gasoline Bills, Old Scout?”

last her if I use a light engine, and I don’t like the idea of ballast.”

A couple of Doubts who were at my heels said, “Oh, fine. You have hit another bull’s-eye.”

Thereupon I told the engine man I would think the matter over, and so saying, took my departure. I was now in an entirely unsettled state of mind. “As two-cycle, two-cylinder engines go,” I said to myself, “that is probably the best engine made; but the sizes don’t quite fit me, and if I get more power than I want I shall have a gasoline bill that will take away all the pleasure I may get from the boat.”

My crew of Doubts here sang a chantie, entitled, “We’ve got the old man going.” They resolved to “prod him up on the fuel business,” and did so, with such good results that on my arrival home that evening I knew not what to say about engines. I was discouraged, and the Delectable Mountains were still a long way off.

My wife, who has a sense of humor, asked what engine I had decided on, and I was fain to tell her "None."

"I never realized before," she said, "how many things there are to think about when you build a power boat. A sailboat is so much simpler!" I agreed with her.

Now I had recourse to catalogs. I think I sent for every engine catalog published in this country. My crew of Doubts helped me read them, looking over my shoulder and saying, "I wonder how much gasoline per horsepower this one eats up." You see, I was getting nervous on the fuel prospect. I was really touching the heart of the gasoline-engine trade, though I did not then realize it.

After reading all the catalogs, and finding very little in them on the subject of gasoline consumption, I began to ask questions of engine agents. I found them non-committal as to how much gasoline their engines consumed. Their tone was that of the advertisements and the catalogs. They quoted me the standard formula, "a pint of gasoline per horsepower per hour." I asked if that was exact. Some said they did not know. Others said, "As nearly exact as anyone can get it." Others said: "We can't guarantee fuel consumption. Gasoline varies, and conditions vary. But our machine doesn't burn any more than the rest of them."

This was as far as I could get with the agents. They could guarantee nothing on gasoline.

"Now," thought I, "why isn't this gasoline question the most vital one involved when you buy an engine? If I bought a steam engine I should like to know the cost of operating it. If I bought a furnace for my house I should consider its coal consumption an important factor. In most trades the dealer has something definite to say on such matters. Why not in the gasoline-engine trade? It seems that the whole trade must sooner or later rest on economy of operation."

My crew of Doubts all joined in a chorus, in their own language, saying, "You're on."

About this time I met Skipper Day, and we talked over the engine question, and the vagueness of the ordinary manufacturer's statements about the appetite of his engine. "That is the great trouble with the trade to-day," said the Skipper. "It hasn't learned yet that it must get down to a basis of approximately guaranteed performance before it can become steady. Most dealers talk about the quality of their castings, about bore and stroke, and number of revolutions and steadiness of performance, but they don't say a word about the cost of running their machines. When they do make an estimate for you it is usually under the actual figures. In spite of the uncertainties of the performance of an engine, the difference in fuel, and all that, there ought to be some general rule for dealers to follow in treating with this important phase of the business. They might at least make a frank statement as to what the different types of engines will do relatively. Then the buyer will not be disappointed. If he buys a cheap two-cycle engine and it proves wasteful of gasoline, he ought to have understood beforehand that a higher-priced, four-cycle machine would be more economical in operation.

"Hardly any engine will run on its estimated fuel



Homer Casually Mentioned Engines

consumption. One boat I handled in a long-distance race was guaranteed to burn but $2\frac{1}{2}$ gallons of fuel an hour. On a long race it is important to know before you start how much gasoline to take with you, for you can't stop in mid-ocean and get a supply. I increased the manufacturer's estimate 60%, in ordering my fuel. I found when we got to sea that we used $3\frac{1}{2}$ gallons an hour, and at times as much as 5 gallons.

"When I was getting ready to cross the ocean on Sea Bird I wrote to all the manufacturers of kerosene engines that I knew about, asking each how much fuel his machine burned an hour. It was essential that I should know. My life, and the lives of my crew, might depend on our fuel holding out.

"Only one manufacturer replied with an estimate he was willing to stand behind. That was the maker of the Knox engine. He had put his engine through a severe fuel test, and knew what he was talking about. On the strength of his statements I gave him an order for a Knox for Sea Bird, and I did not regret it. Our fuel lasted just as long as he said it would. A good many manufacturers 'knocked' me because I gave the Knox people so much free advertising. Anybody in the trade can get free advertising from me who will handle this fuel proposition the way the Knox people did in my case."

My talk with the Skipper showed me pretty clearly what I wanted—it was an engine of guaranteed steadiness of performance and economical consumption of fuel. There must be such in the market, thought I, besides those in the King Row as to price. I did not feel that I could afford one of the highest grade engines. The first cost looked too big to me.

One feature of the engine in the Sea Bird had not escaped me in the description of it printed in THE RUDDER: It had jump-spark ignition. The Skipper bore testimony to the safety and reliability of this system. That set me thinking on ignition systems. I asked an old-time gasolene yachtsman his view.

"Make-and-break is all right for fishermen and working boats," he growled, "but you don't want it on a yacht engine. It's crude—the earliest type of ignition. With the improvements that have been made in ignition systems in the last few years, the jump-spark system has been perfected. It is now reliable, and can be depended on to give you perfect timing. You can't get that on two cylinders with any system of make-and-break used on ordinary small engines, after they have been worn a few seasons."

Here was another shift of wind for me. I embraced the jump-spark idea. "Oh, ho!" said my Doubts in chorus. "O Me, O Mi!"

At this juncture of my pilgrimage I fell in with Homer—not the gentleman who sometimes nods in the classics, but the Homer that never nods, that is, the Homer who sells engines in Boston. There was never a time when Homer hid his light under a bushel. In fact, I doubt if the bushel has ever been made that would hold it; certainly no bushel that the Inspector of Weights and Measures would pass as such would hold half of it. Homer's is not the light of the tiny candle the poet sings of, casting its bright beams in a naughty world. Homer's light is like one of those wink-wink-wink electric installations they are putting now in the coast lighthouses of the first class. He wants everybody to see it. If there is any danger they won't see it he goes out and tells them about it. If he can't tell them personally he uses printer's ink to do it; which is really one of the best things about Homer, from a scrivener's point of view.

As I was saying, I met Homer. It was at a dinner. Our host, not knowing we had met before, tried to introduce us, but he hesitated at Homer's name. He couldn't recall his Christian name, and stumbled over it. Some time in the dim past somebody may

have named him, calling him Percy, or Reginald, or Montmorency, or Arthur, or something like that, suggesting the days of the Round Table and the Quest of the Holy Grail. Whatever they called him, it didn't stick, any more than some of the things people call him now in the engine trade. As he broke into business he became just Homer, a name he has smeared since then on many a board sign, in gilt letters.

When the boy came in with the caviar—it was a club dinner—and the decanters of stomach bitters, Homer said, with a glow in his countenance like a harvest moon, "I hear you are thinking of going into the gasolene game," or words of like import. I will not quote him further. His remarks were modest, somewhat general, almost vague, as if he had not marked me for some weeks past, and awaited the psychological moment for giving me the javelin. As we both reached for an appetizer—to a man who does not find the fumes of gasolene offensive the flavor of caviar and the odor thereof are as nectar and myrrh—our eyes met, and I answered, "Yes, but I shall probably order my engine direct."

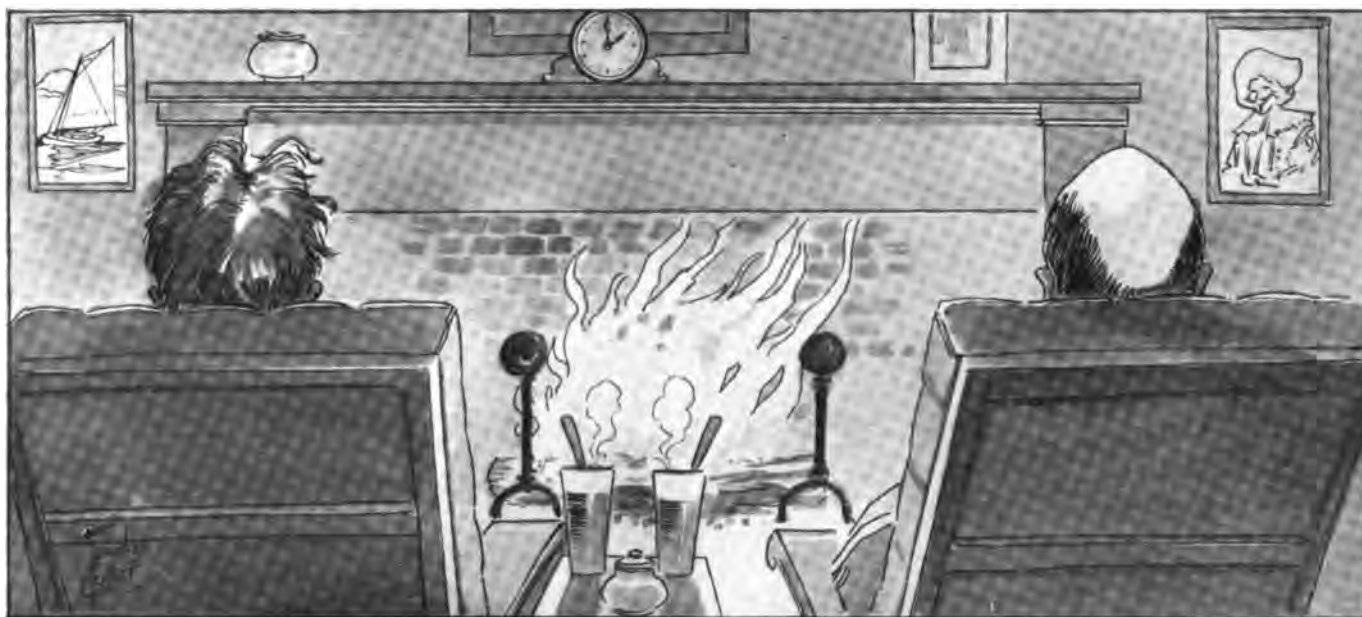
"You think you will," said Homer, "but I'll bet you a hat you will buy an engine of me. You owe it to yourself, anyway, to come down to my place and see some real engines."

His remarks seemed to me rather ill-timed—not on the score of talking business at dinner, for most Americans do that—but because of the cock-sureness with which he sought to disturb the course of my procedure in buying an engine.

So I replied: "Homer, if you can sell me an engine against my will, you are a good man, and I will come into your camp like a captive chained to your chariot wheel."

Whereupon he answered, "Come into my place when you feel like it, and we'll talk engine."

When I passed his door—under the big gilt sign setting forth the worth of Homer and his wares—I was met by the owner of the sign, the high priest of gasolene. Homer himself, with the kindly salutation, "You're lost."



Skipper Day and I Talked Power

Privately I thought this a correct statement. Anybody thinking of buying an engine and trusting himself within Homer's portal is in fact as good as lost. He may be saying to himself as he goes in, "Homer is a butt-in and a boulder, and I won't buy an engine from him if I never have one," or he may be saying, "There are other folks in this business besides Homer, and they have engines just as good, if not better; when I have heard his spiel, I'll go to them."

Foolish conservative! Before Homer's blow-lamp of enthusiasm such frigid stiffness melts. Homer cares not who comes, he goes to the attack blithely, with the pipes playing the pibroch. Sometimes he goes down in defeat, perhaps, but often the strong fall before him without a struggle.

I was not strong. When I went into Homer's place I thought I wanted a two-cycle, two-cylinder engine of 8-h.p., such as I had had in mind from the early stages of my engine education; but furthermore I wanted one with a guarantee, approximate at least, as to consumption of fuel. I must have an engine of low initial cost. Before I got out my ideas were all upset, and I was committed—

But let us halt a while and witness the processes of the engine agent in action. Homer came forward modestly, almost shrinkingly, and handed me his hand. Then he said: "Here is the engine you are looking for," indicating one of several makes for which he is agent. "That is one dandy engine. There isn't a better two-cycle engine made. It has the finest finish, the largest valves, the best line of equipment, and will produce the most power for the fuel used, of any two-cycle engine on the market. It's—"

"And then some," said a still, small voice beside me. I looked down, and there were my old crew of Doubts, all smiling.

I asked Homer how much fuel the engine he showed me—a 12-h.p. two-cylinder—would consume in an hour.

"You know the formula," he said. "Out of seven engines tested on the block, that and one other were the only ones that consumed less than a pint per horsepower an hour."

I heard a low chuckle from No. 1 Doubt. "That listens great," he said.

And so I left Homer for the time being.



Homer Came Forward Modestly



My Crew of Doubts

"Don't suppose you're interested in the Sterling?" he said carelessly, as I went out of the door.

"No," said I. "Costs too much; too elaborate; 'way beyond me."

"Good night," said Homer. "Come around when you're ready to order."

My wife, having followed my progress toward the Delectable Mountains with comradely interest, and noting me in a brown study at dinner that night, said:

"Is it jump-spark or make-and-break this time?"

I replied that I had turned that corner. Skipper Day had convinced me that the jump-spark system of ignition was not half as complicated or unreliable as I had thought, and Homer had confirmed him. I thought I would try the jump-spark. It certainly had some good points, I said. I then, by means of a couple of dishes, illustrated the action of the timer, explained the safety of the low-tension system of transmission, with the wax-enclosed spark plugs impervious to water, and on the whole gave quite a little lecture on the merit of the jump-spark system.

Wife listened sympathetically, but her postscript was: "I'm sorry, though, to part with our old friend Make-and-Break. He has been a companion to us all Winter."

She would have been grieved, no doubt, if she had known that already our equally old friend Two-Cycle was also doomed to limbo; but I did not know that myself as yet.

As I sat before the fire that night Homer's question about the Sterling kept recurring to my mind. Finally rising from my armchair, so suddenly that my crew of Doubts were startled from their places on the rug about me, I reached for my ever-ready pile of RUDDERS, and taking up number after number, turned to the advertising of the Sterling people.

I had read all their advertisements before, and had not been conscious that they had impressed me. Now they took on a new meaning. They represented something that I had valiantly tried to banish from my thoughts, even when denying a desire for it—a high-grade engine. I now read with care all that was stated in them about that engine.

So far as this kind of engine went, my mind was open. In my quest for the right engine for Sizzler I had indeed only studied the two-cycle. I had yet to learn the merits of the higher type. Here entered into the situation the value of advertising. Its effect

on the reader is cumulative. If I had never seen an advertisement of the Sterling engine, I doubt much if Homer's question would have set me off as it did. Now I seemed to know all about the Sterling people, for they had been telling me their story for months and years. It only needed the small philtre of the personal equation, administered by the gentle Homer, to make the virus operative in my system. There may be a helpful lesson for engine men in this incident, if they care to profit by it, for with steady and liberal advertising to back him up the agent's work is half done for him, while a live agent puts the finishing touch on the work done by the intelligent advertiser.

With my resolve to consider the Sterling a possibility, I set out to study the four-cycle engine. I looked up a good friend who had long operated one, and who had ever scoffed at my aims to own a two-cycle. Painfully he drilled into my non-mechanical brain the principle of the thing. The positive operation of the valves, the mixing of the vapor in advance of the stroke on which it is needed for an explosion, the passing of an exact amount of the mixture into the firing chamber, the entire controllability of the fuel supply, the relative smallness of the intake fuel piping and carbureter, soon convinced me that by comparison the two-cycle is recommended chiefly by its lower initial cost.

From being a "two-cycle man" I changed in a day to a four-cycle believer.

Having undergone this change of heart, I called again on Homer. I affected to be still interested in the two-cycle engine. His keen commercial glance detected the fraud, but he said naught. Presently in came a man whose affairs would not wait, and I yielded to him. He and Homer, as a postscript to

their business, exchanged reminiscences on gasoline consumption. They named certain two-cycle engines they had used, and gave figures of gasoline consumed in given periods. The conversation was not directed my way, and was entirely offhand and genuine, yet somehow I listened like a spy at a keyhole of the council chamber.

After the man had gone Homer came over to me.

"Made up your mind yet?"

"No."

"Better consider one of our 8-10 Sterling 'Fishermen,'" he said. "I haven't tried to sell you a Sterling, because I know you are intelligent enough to do your own thinking. But just take this catalog, look over that engine—that one, there on the block—and when you get around to it, come in and we'll book the order. You wouldn't be satisfied with anything else. Any intelligent man in this game won't stop short of the best, and that's it."

I was hooked, and knew it. My crew of Doubts dissolved, and probably shipped with somebody else. The engine was two-cylinder, jump-spark, medium speed; but in deciding on it I seemed to care not whether it was jump-spark or make-and-break; whether it had a high- or low-tension ignition system; whether it made 500 or 700 revolutions a minute. It looked good to me, and I was satisfied in a minute that it would do all that it should. Furthermore it seemed reasonable that its consumption of gasoline would be what was claimed for it, namely, not more than a gallon an hour.

Whether in this or any other respect the machine was to fall short of my expectations will appear in THE RUDDER in due course, along with a log of my experiences in launching, equipping and running Sizzler in the waters of the coast of Maine.



Execution Light

JOSEPHINE

THOUGH not of this year's creation, having been commissioned a little less than a year ago, a general description and illustrations of the exterior and interior of the 138-foot power cruiser Josephine are of interest, since the craft is one of the finest of her type afloat.

Josephine was designed and built under the supervision of William Gardner, for Mr. Edward Shearson, of New York, a member of the New York Y. C. The builder was Robert Jacob, of City Island, N. Y., and she is one of the largest power yachts yet built. She is of the twin-screw, flush-deck type, with two large deckhouses, affording commodious living quarters below deck and desirable dining and lounging saloons on deck. The hull is entirely of high-grade steel, with five watertight bulkheads, dividing the boat into four compartments. The crew's quarters and galley are in the forward compartment, the machinery and gasoline tanks in the two midship ones, and the after one is utilized for the owner's and guests' accommodations exclusively, and subdivided in three double and one single stateroom as follows:

The owner's stateroom is situated in the forward part, extending the full width of boat, and is fitted with two stationary beds, two bureaus, one dressing table with large mirror over it, one sofa, and two wardrobes fitted with innovation hanging fixtures. Communicating to starboard is a fully equipped bathroom, with porcelain fixtures and nickel-plated piping and fittings.

Directly aft of owner's room is a lobby and passageway with stairway leading to upper deck saloon. Lobby and passageway is to port for half the length of living quarters and central for balance of space, thus permitting of a large double stateroom to starboard. This room is equipped with two stationary berths, one large bureau, two wardrobes, folding wash-basin and seat. The passageway is fitted up with gun-racks, clothes lockers and large sofa.

To one side of passageway aft is a single stateroom with built-in berth, wardrobe, bureau, seat and folding wash-basin. On starboard side there is a commodious trunk room and aft of it is a bathroom with enameled iron bathtub; other fixtures of porcelain and all fittings and piping of brass, nickel-plated.

At the after end of living quarters is a large double stateroom having two built-in berths, with bureau between, two wardrobes, two seats and folding basin, making this room very complete and extremely comfortable due to the trunk hatch skylight directly over it affording lots of light, ventilation and headroom.

All of the staterooms and bathrooms have overhead ventilation and light in addition to the side ports. All the seats, bureaus, berth fronts, etc., are of selected solid African mahogany with rich grain. The beds are all fitted with head and foot-boards handsomely carved. Bureaus are fitted with beveled plate-glass mirrors above, set in carved mahogany frames in keeping with design of room. The woodwork otherwise is of white pine, neatly paneled, trimmed with mahogany and finished white with imported Holland enamel. The bathrooms are finished all white, gloss finish, and floors covered with rubber carpet.

Directly above these quarters is a large deckhouse finished entirely in African mahogany, Empire style. In after part are large built-in sofas with upholstered backs and seats. The ceiling beams are of solid mahogany and panels between of leather with gold lacquer finish.

The dining saloon and pantry are situated in forward deckhouse. The dining saloon is executed in the Elizabethan style, is handsomely carved, finished entirely in the natural Tiger wood, and fitted with large sideboard, extension table and fourteen chairs. All the furniture is of Tiger wood, carved and finished to match interior woodwork. The pantry is in the after part of house and finished in mahogany. It is



Josephine, 138 Ft. O. A., Owned by Mr. E. Shearson, New York City



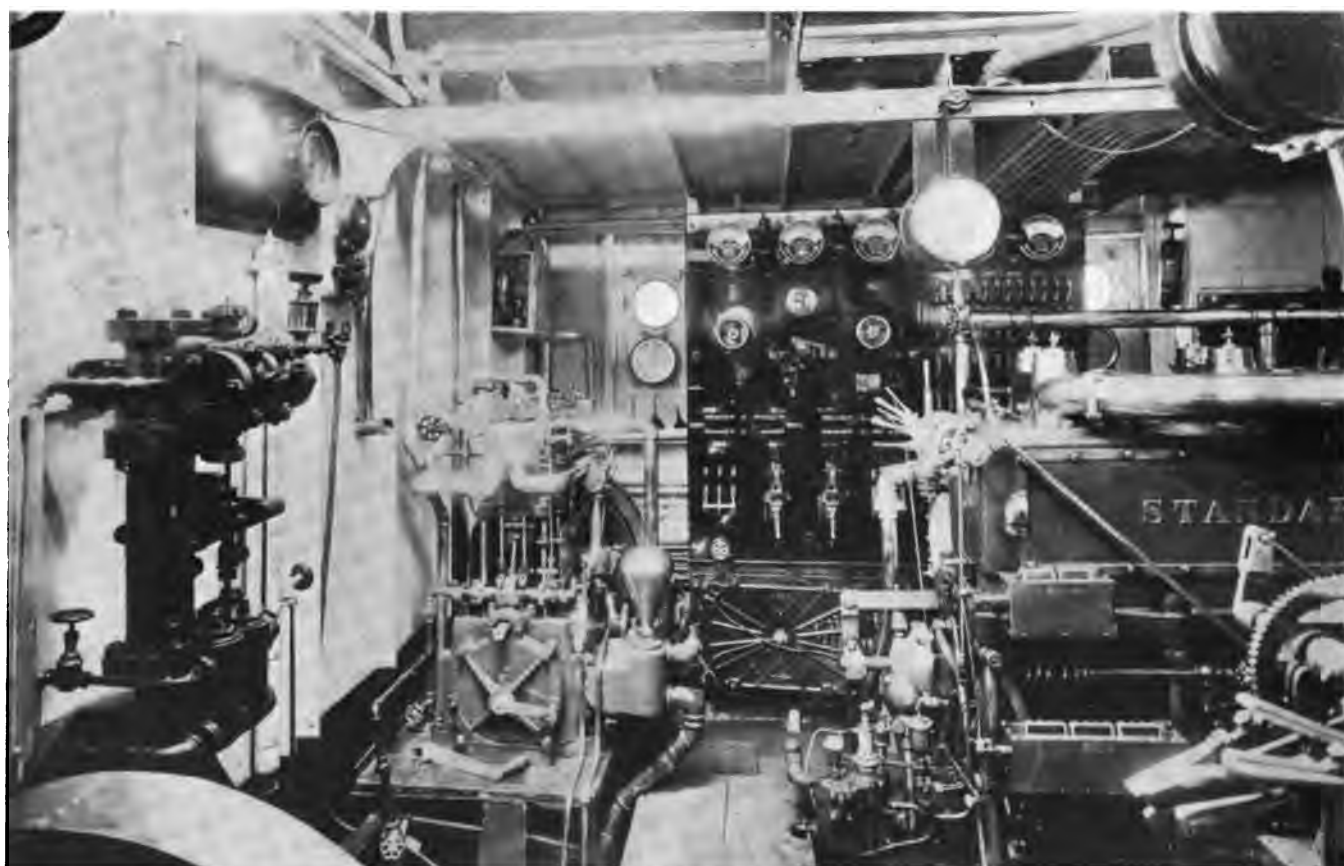
View in Deckhouse



Dining Room



Deck View Looking Aft



View of Engine Room

made complete, with ice-box, dresser, sink, racks for dishes, dumb-waiter and stairs to galley directly underneath, thus simplifying the passing of food from one deck to another.

The crew's quarters is divided into two compartments with three staterooms and commodious mess-room for officers and separate forecabin and wash-room for sailors. The galley is situated directly forward of machinery space and extends for the full length of ship. A large ice-box is built on starboard side holding about two tons of ice and ample room for provisions. A 4-foot ship's coal range with hot-water boiler is installed in galley to furnish hot water for ship's use.

The deck is of selected white pine with teak waterways and rails. The exterior of deckhouses and all deck skylights and companionways are of mahogany. All metal fittings on deck and all window and port screens are of non-corrosive white bronze.

The yacht is steered from bridge located on top of forward house. A ship's compass and binnacle, mechanical telegraph, steering stand and wheel, searchlight, chart table, etc., are installed convenient to navigating officer.

The complement of boats consists of one 24-foot owner's launch, one 18-foot market launch and one 14-foot dinghy. These boats were all specially designed by Mr. Gardner for the purpose for which they are intended and are of solid mahogany, handsomely finished and of strong construction.

The propelling power consists of two six-cylinder air-starting and air-reversing Standard gasoline en-

gines, having a combined horsepower of 600, giving the yacht a speed of about 20 miles an hour. The fuel capacity is of 3,000 gallons, stored in three seamless welded tanks and installed in a watertight compartment completely isolated from the rest of the boat.

In engine room there is installed one General Electric 5-k.w. gasoline generating set, and in addition one standard combined dynamo and bilge pump, thus affording a double system for lighting the yacht. The storage batteries are of the latest Edison type and of very large capacity. An electric windlass for hoisting anchors and boats and electric pumps for sanitary service are installed. Numerous outlets are provided for heating yacht throughout by electricity, also in galley and pantry for cooking purposes.

The interior appointments of this yacht, such as hangings, upholstery, carpets, etc., are of the best materials procurable and furnished with a view of comfort and durability.

Josephine cruised over 6,000 miles and has covered the Atlantic coast from Bar Harbor to Key West, encountering all conditions of sea and weather with extremely satisfactory results.

During the Summer months she can be seen almost daily on Long Island Sound on her regular trips between Mr. Shearson's Summer home at Greenwich, Conn., and New York City.

General dimensions are as follows:

| | |
|------------------|-------------------|
| Length o. a..... | 138 feet 0 inches |
| Breadth | 17 " 0 " |
| Draught | 4 " 6 " |



Owner's Stateroom

HOW TO BUILD A SHOAL-DRAUGHT LAUNCH, SAND CRAB

Ernest Serrell

PIONEER, the original of Sand Crab, was designed and built late in 1911 for use on the inland waterways of the East Coast of Florida. These rivers and their connecting canals parallel the coast from Jacksonville to Miami, a distance of about 360 miles, and offer a fine field for Winter power boating. The main channels and the canals have plenty of depth for boats of 3 or 4 feet draught, but if one wishes to take the numerous side-trips, or is not well acquainted with the waterways, a boat of extremely shallow draught is required. The popular type of native power boat seems to be one which is locally known as a "choke bore." The bottom of these boats is flat forward, running into a slightly concaved section aft, resulting in a draught, at the propeller, of a few inches less than that of an ordinary boat. Of course, on these boats, as on the ordinary type, it is necessary to attach a skeg in order to protect (?) the propeller. To eliminate the disadvantages of the deep draught of both these types the round-bottom tunnel-stern boat has been extensively introduced. Although accomplishing their mission they are, however, expensive and too complex in construction for an amateur to build.

The design for Pioneer was made with the idea of combining the underlying principles of the round-bottom tunnel-stern boat with the simple and inexpensive construction of a flat-bottom bateau. She is 18 feet 6 inches over-all length, 18 feet water-line length, 4 feet extreme width and 4½ inches extreme draught. The tunnel, a box-like affair, commences about amidships and runs aft to the transom, its highest point being 4 feet 6 inches forward of the transom. At this point the inside cross section of the tunnel is 14 inches square, which allows the propeller to be placed entirely above the bottom of the boat. The advantage of this arrangement is self-evident. The tunnel sides have a removable cover which is flush with the aft cross seat and forms a seat extending forward to the bulkhead aft of the engine. The aft seat and filling piece between it and the coaming is loose and gives access to a storage space under the aft deck. The space under the forward deck is reached by means of a door in the forward bulkhead. Being flat-bottomed she is very steady and roomy, which features, combined with the seating arrangement, make her just about ideal for fishing purposes. Her planking is of cypress (capable of absorbing its own weight of water) ¾ inch thick on the bottom and ⅝ inch on the sides. The tunnel sides and cover are also of ⅝-inch cypress. The frames are of cypress 1 inch by 2 inches in section. The engine is a single-cylinder, two-stroke, two-port, of 4-inch bore and stroke. The outfit weighed approximately 1,200 lb when it went in the water—modesty forbids even a guess at its present weight. "Wide open" the engine turns a 12½-inch

diameter three-blade propeller of 16-inch pitch 720 r.p.m., and maintains a boat speed of about 7½ miles per hour when running in water of more than 15 inches depth. This speed is very little, if any, slower than one would expect to obtain with a similar engine in a boat of conventional lines and the same weight.

Two rather unique features were developed in her performance. The first one was noticed from the start. She actually rises more aft than she does forward when running ahead. The other came as a surprise later when she was being put through her "Admiralty Trials." Wishing to study her action when running aground, a smooth sand-bar with an average slope of about 1 foot in 100 feet was located and after placing a few reference stakes, she was run on the bar at full speed. Naturally the speed was found to decrease as the depth of water decreased, being 4 to 4½ miles per hour in 7 inches of water. She finally came to a stop in 5 inches depth, the engine continuing to turn at about a constant speed. The surprise occurred when the engine was shut off: the boat was found to be perfectly free of the bottom. A second's thinking will tell the answer—the propeller had simply removed most of the water between the boat and the bottom and she had to stop. Of course, oyster-shell bars and rocks cause slightly different results in her grounding action—several minutes' work with a pole is required to free her on some occasions. The rudder is hung outside the transom and on the center-line; although rather small it will turn the boat on a radius of about 100 feet, or if she is listed out slightly she will turn on a radius of about 50 feet. When running astern she seems rather slow in starting to obey the rudder but after she begins to swing she will turn in a much smaller space than when going ahead. When starting the boat the engine will race at about 1,000 r.p.m., for a couple of seconds, as the propeller is less than one-half in the water, then the air is expelled from the tunnel in a rush. After that the engine may be slowed up to less than 200 r.p.m., and still no air will be admitted in the tunnel, even though the crew sit on the forward deck. If the engine is throttled very quickly after starting, so the air is not expelled from the tunnel, the boat will run at a speed of about one mile, or less, per hour. The boat speed at which the tunnel will fill with water was not determined, as there were no convenient means of towing the boat. The propeller will expel the air when turning at the rate of about 400 r.p.m. The propeller has never raced after the tunnel has filled, although the boat has been run in some open stretches of three or four miles in length in a good breeze.

The outfit has proven all that could be desired and any one who can drive a nail, saw straight and use a square can duplicate it. The list of materials required will give a very good idea of its cost. The appear-



Shoal-Draught Launch Designed by Mr. Ernest Serrell

ance of the boat may be improved possibly by cutting down the freeboard aft and continuing the forward deck back to the engine and adding a glass spray shield—thus giving her a runabout appearance. It is doubtful if any material advantage would be obtained by increasing the power of the engine—she is a “well-balanced” outfit as she stands and usually it is best to leave well enough alone. In conclusion: Pioneer has been able to run wherever there has been 6 inches of water and to make a landing at almost any shore. She is a roomy and comfortable boat, and a better boat for camping and cruising on the small rivers and lakes in the North would be hard to find. The accompanying plans are for a similar boat, having more flare forward and on the sides; the freeboard has been increased and also the size of the rudder.

The method of constructing this boat is as follows:

First fasten the stem, knee, tunnel sides and transom together, turn them bottom up and brace them securely on a good floor. Then put the frames, which have already been built up, in place and fasten them to the tunnel sides. Put in the chines and make them fast to the frames. After the frames have been leveled and braced plank the bottom and then the sides. Then turn the hull right side up and put on the decks and finish up the interior work.

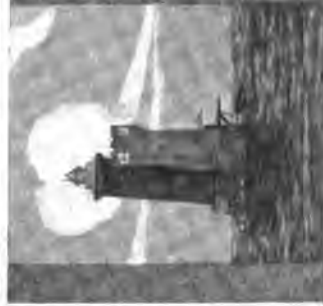
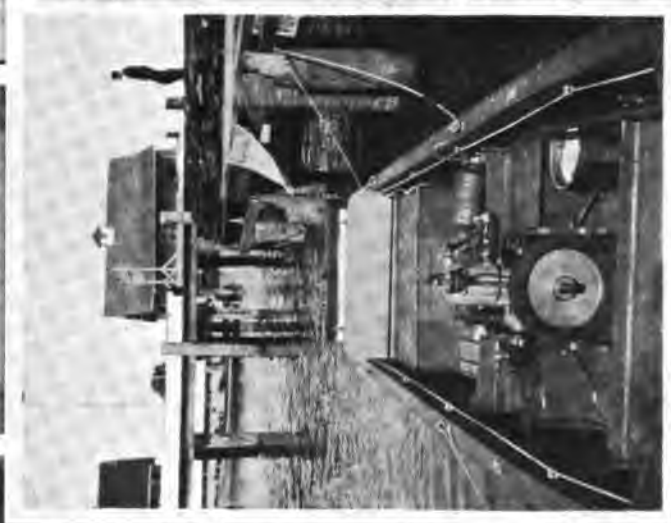
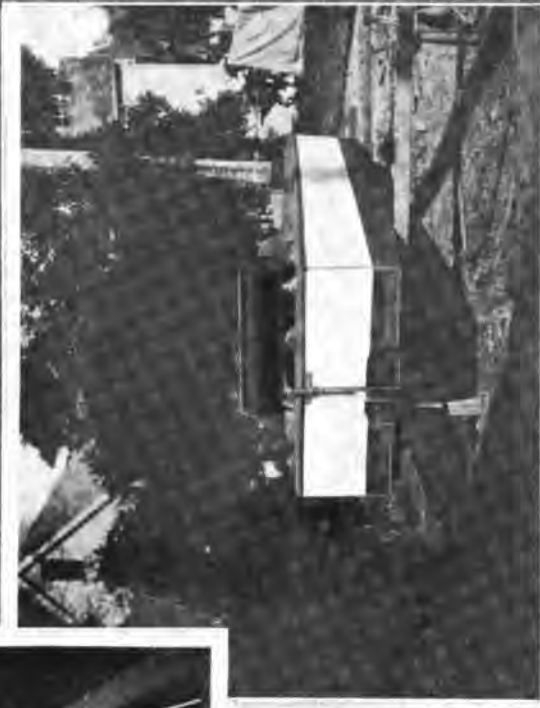
The stem (Sheet 3) should be made of oak and rabbeted as shown. The bottom, forward of the rabbet, is finished flush with the bottom of the planking and the top finished when putting the decks on, so it will be best to make the stem a little longer than actually required.

The knee (Sheet 3) should be worked out of oak or hackmatack and fastened to the stem with two $\frac{5}{8}$ -inch galvanized iron lag-screws. The tunnel sides are also bolted to the knee with five $\frac{5}{16}$ -inch galvanized bolts. These sides are made of cedar $\frac{3}{4}$ inch thick and full length and really form the backbone. (Sheet 2 gives dimensions for cutting them out.) When laying them out it will be a good idea to mark the center-line of the propeller shaft and also the line of the bottom side of the tunnel cover on their inner faces. The center-line of the propeller shaft will make the work easy when it is time to locate the strut, stuffing-box, and engine logs. When ready to assemble they should be separated at frames Nos. 8, 12, and 16 by spacing pieces 14 inches long and 10 or 12 inches wide. These spacing pieces may be made of any scrap lumber, as they are taken out after the planking is completed, but they should be cut perfectly true and square. Now work out the corner pieces and fasten them to the tunnel sides with galvanized nails, or better, galvanized screws. They should be made of pine and worked out of a piece $1\frac{1}{4}$ inch thick and 4 inches wide. The notches for the frames should be cut before the pieces are fastened to the tunnel sides.

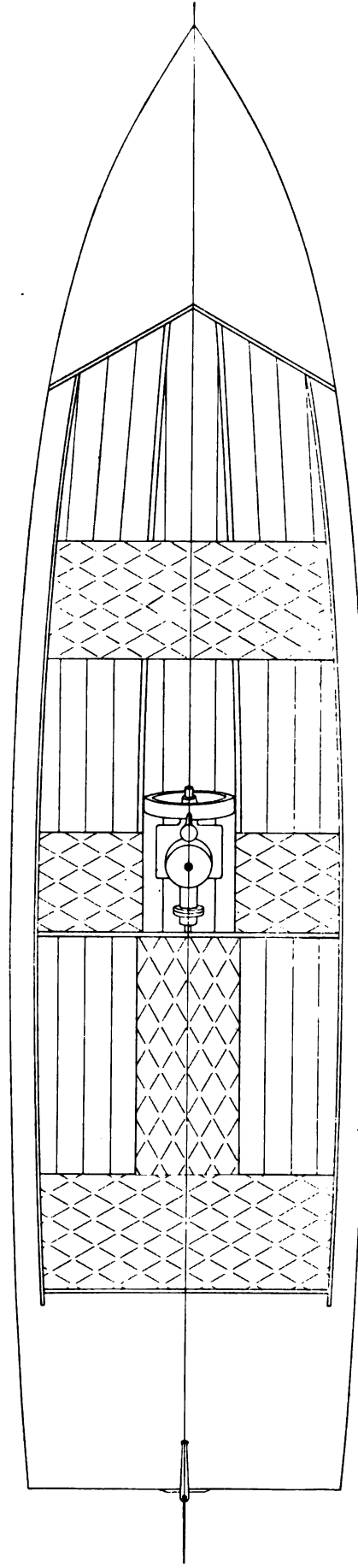
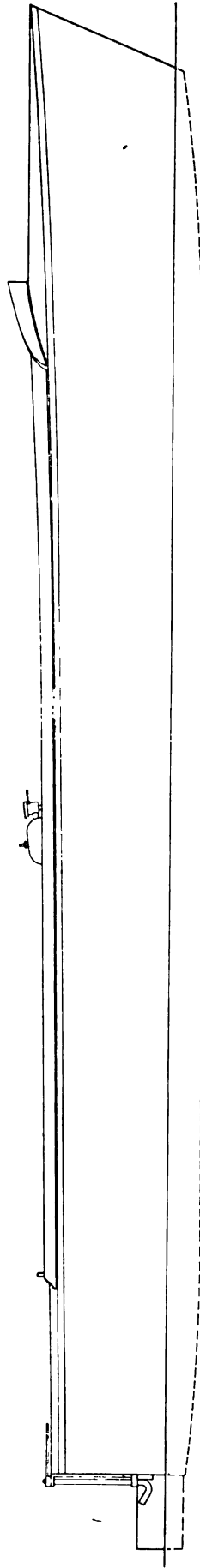
Now we are ready for the transom. This is made of $\frac{3}{4}$ -inch cedar and reenforced with oak pieces as shown on Sheet 3. When making the transom cut it about $\frac{1}{8}$ inch over size on the top and sides and $\frac{1}{4}$ inch over size on the bottom, as it will be necessary to fair it up with a batten after the frames are fastened in place. Fasten the tunnel sides securely to the transom with galvanized screws. Lay them on a thick coat of white lead and three or four threads of wicking—being careful not to get the wicking

directly under the screws. The frames (Sheet 4) are all made of clear oak, $\frac{3}{4}$ inch thick and $1\frac{1}{4}$ inch wide, dressed to size. The lengths used should be perfectly straight. The diagonal tie-pieces are made of the same stock and fastened to the frames with galvanized nails clinched over. Of course, it will be necessary to drill for the nails. The side pieces should be cut 2 or 3 inches above the sheer-line mark. Be sure to cut waterways in all the frames and also in the tunnel sides forward of frame No. 10. Now turn the backbone bottom side up and mark station lines each 12 inches, beginning at the forward side of the notch in the corner piece for frame No. 11. Frames Nos. 1 to 10 inclusive are set with their aft sides on the station marks and those aft of No. 10 with their forward sides on the mark—which was taken care of when cutting the notches in the corner pieces. Block the backbone up, in its inverted position, so that the bottom of the boat will be about 3 feet above the shop floor. After leveling it fore and aft and also athwartships brace it securely to the floor, being careful that the stem and transom are both plumb. Put in several light spacing pieces between the tunnel sides, at least one every 4 feet. Mark a center-line between the tunnel sides on these pieces, also on the spaces at frames Nos. 8, 12 and 16, and stretch a line fore and aft above these center marks—i. e., from the center of the stem to the center of the transom. Now force the tunnel sides by means of the bracing to the floor until the center marks are plumb under the line. After marking a center-line on the full-width frames, place them in their proper notches and center them up under the line. Then drill each frame at each tunnel side and fasten with a 3-inch galvanized nail. The half-width frames along the tunnel should be drilled and fastened to the corner pieces with 2-inch galvanized nails. It might be best to put a stay lath across the top of each frame when making them and slip them over the stem before leveling up the backbone.

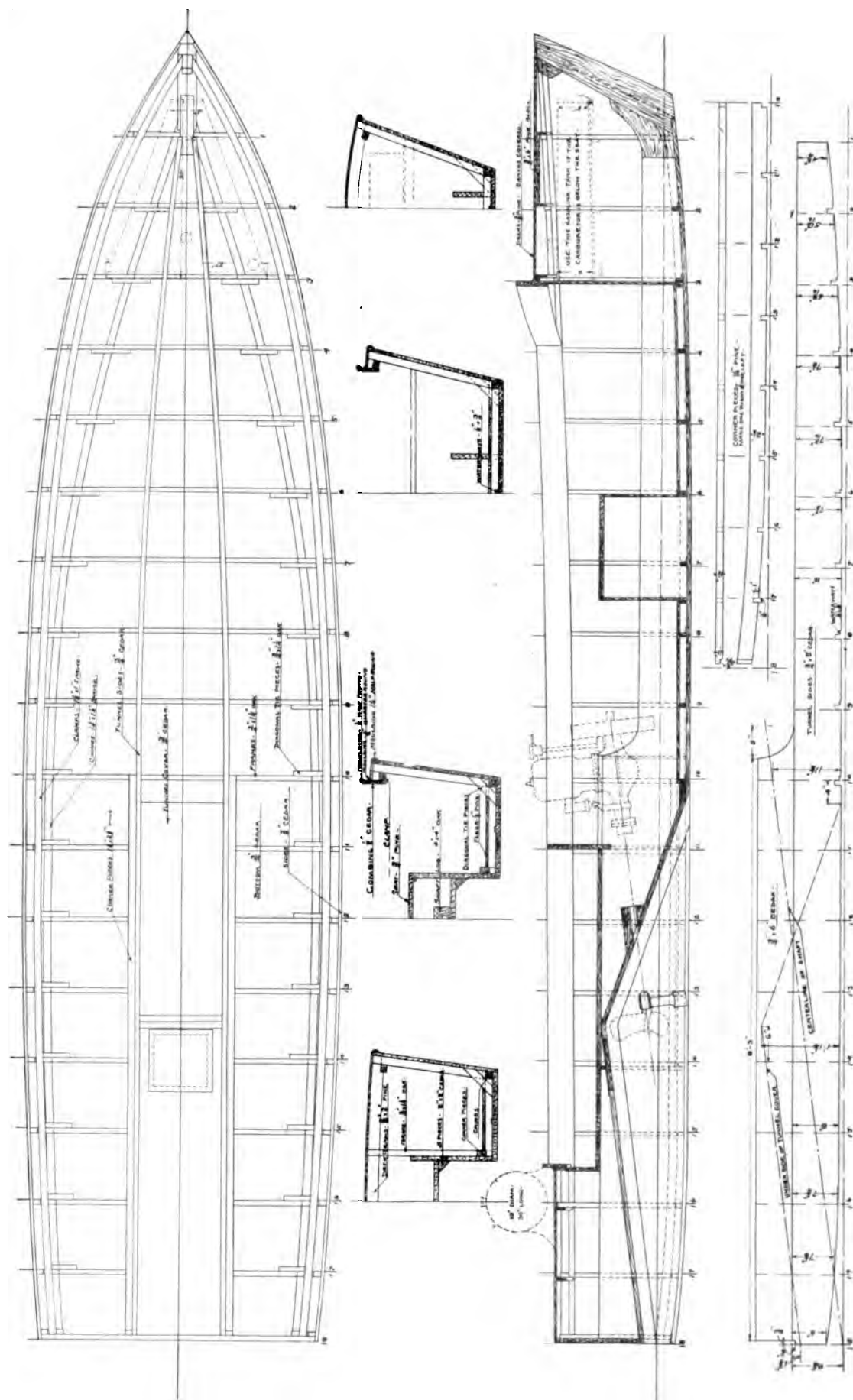
The chine pieces come next. They should be made of spruce $1\frac{1}{4}$ inch square and full length. Their forward ends should be fitted and bolted to the knee at the stem. The chines are fastened to the diagonal tie-pieces of each frame by a $2\frac{1}{2}$ -inch galvanized screw, then they are beveled off fair with the frames. The frames and transom should be beveled off so that the planking will fit snugly to them. Now level up the frames and brace them by means of shores from the floor to the chines, being careful to keep the frames centered under the fore-and-aft line. Use $\frac{3}{4}$ -inch cedar in long lengths for the bottom planking—five 10-inch widths will do it nicely. Start with a center strip running aft as far as the tunnel, then work towards each side from it. Of course, the edges of the planks should be beveled just a little on the outside for calking. Lay the joints along the chines, transom, tunnel sides and stem in a thick coat of white lead and wicking. Use 2-inch galvanized nails for fastening to the frames and $1\frac{1}{2}$ -inch galvanized screws spaced not more than 3 inches apart along the chines and tunnel sides and $1\frac{1}{2}$ or $1\frac{3}{4}$ inch apart at the transom. Now trim off the edges of the bottom fair with the chines and transom and we will be ready to plank the sides— $\frac{5}{8}$ -inch cedar will be plenty heavy enough for the sides: for any ordinary use $\frac{1}{2}$ -inch would most likely do. Start with the bottom plank,

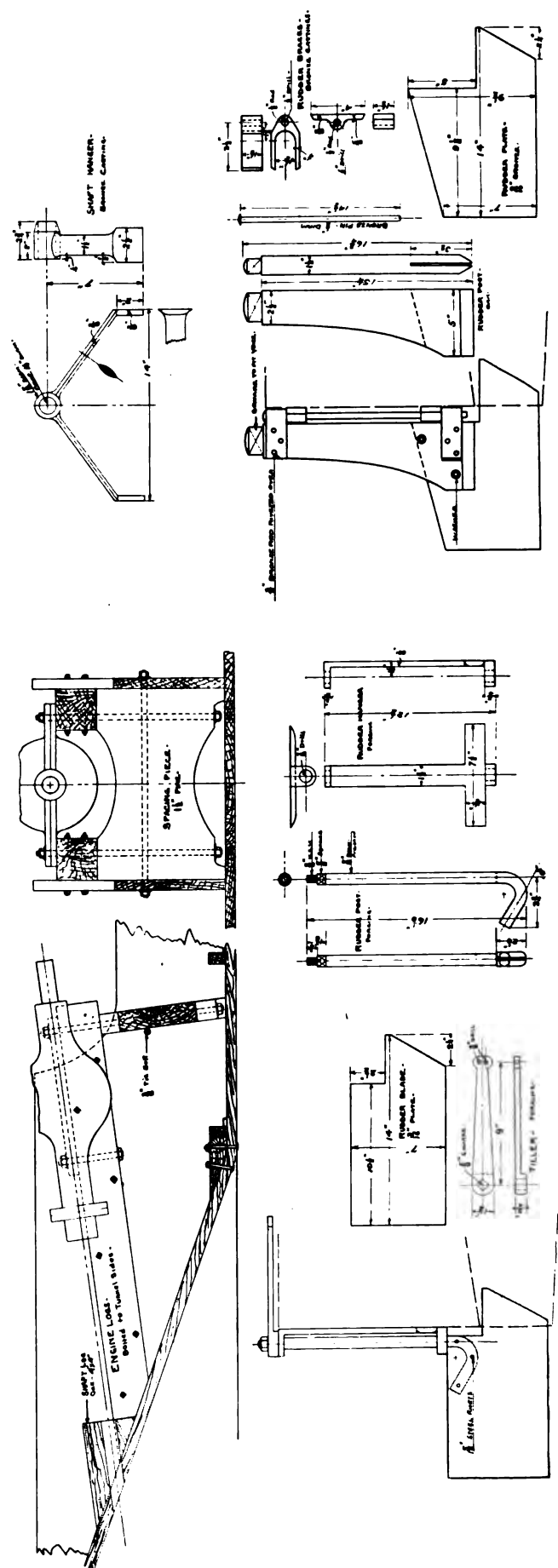


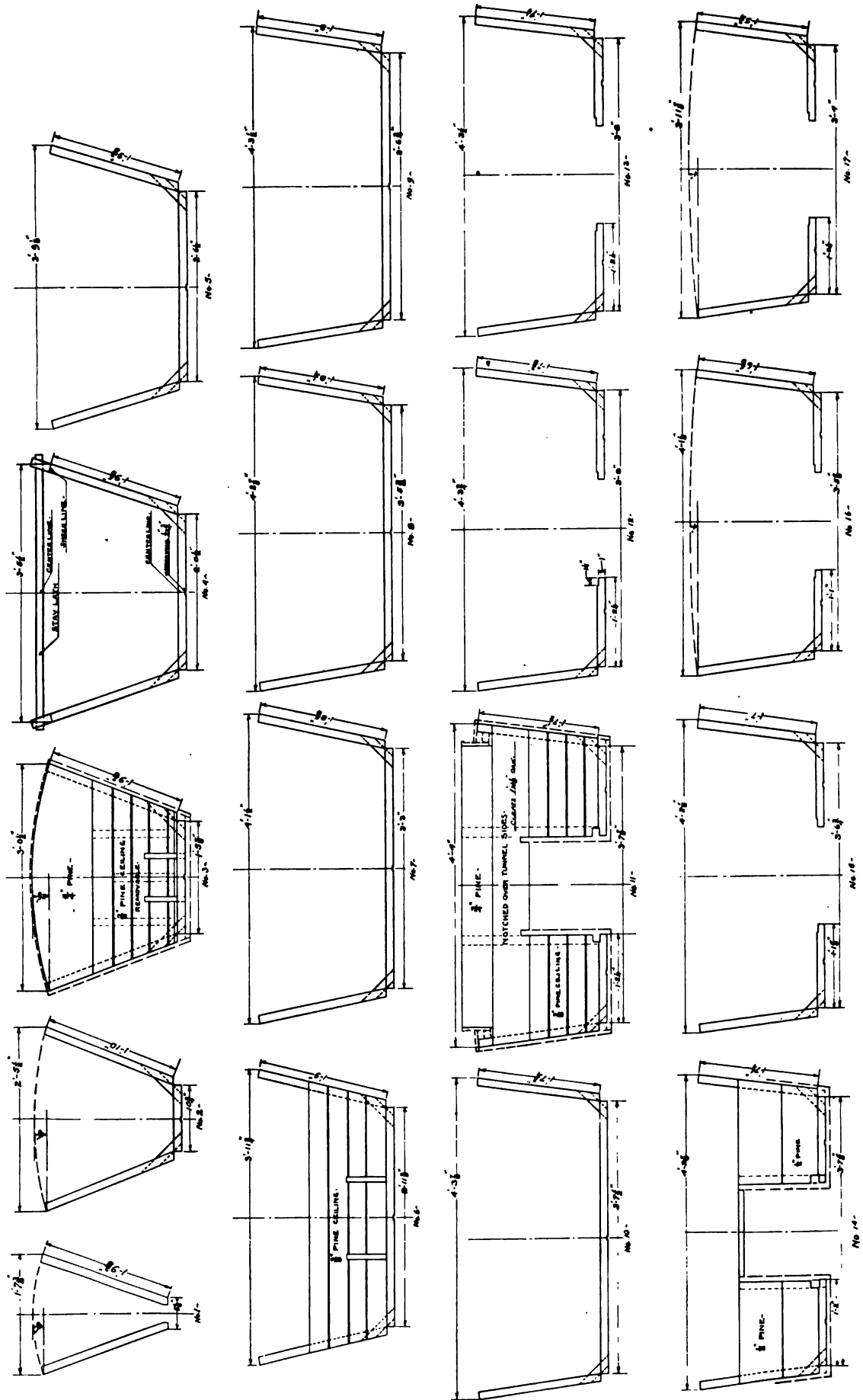
Views of Sand Crab



Sheet No. 1. Outboard Profile and Arrangement Plan of 18 $\frac{1}{4}$ -Foot Shoal-Draught Launch, Sand Crab. Designed by Mr. Ernest Serrell







Sheet No. 4. Frame Construction for Shoal-Draught Launch, Sand Crab

fastening it to the chines, stem and transom with galvanized screws and to the frames with galvanized nails, laying the joints in white lead and wicking.

Paint the seams with red lead, working it in the seam as far as possible, and roll a few threads of wicking in the side seams and calk the seams of the bottom and tunnel sides. We can now knock the shores out and turn the hull right side up. The spacing pieces between the tunnel sides may be taken out, then the triangular pieces and tunnel cover fastened in place.

The triangular pieces are to be made of cedar and the tunnel cover should also be of cedar $\frac{3}{4}$ inch thick and 14 inches wide. If cedar cannot be obtained in this width use pine or cypress. The clamps are next and should be made of spruce, 1 by $1\frac{1}{4}$ inch, in full lengths. Place them so that their top side is about $\frac{1}{2}$ inch below the sheer-line which was marked on the frames. Drill through the planking and each frame and fasten them in place with a 3-inch galvanized nail. Now make bulkheads at frames Nos. 3, 6, 11, and 14, as shown by Figs. 13, 14, 15, 16. When fastening in clamps and bulkheads be careful to keep the center marks on the stay laths in line fore and aft. Cut the deck beams out of $\frac{5}{8}$ -inch pine or spruce and finish them about 2 inches wide. They should be fastened to the clamps and frames. Then saw off the tops of the frames on the same bevel as the deck beams. It will be necessary to fair up the deck beams with a batten, so when fastening them in place have the upper edge about $\frac{1}{8}$ inch high. The tops of the frames along the cockpit are cut off on the same bevel as the frames at the aft deck. The coaming at the forward end of the cockpit should be put in now, then the forward and side decks. All the decks should be of cedar or pine $\frac{3}{8}$ inch thick and fastened with galvanized nails or screws. The side decks had best run through to the transom. Along the cockpit they are cut off flush with the inside edges of the clamps, as they and the clamps are used to support the side coamings. After putting the aft coaming in place put on the aft deck. The flooring may rest directly on the tops of the frames—it should be made in sections to be easily removable. The engine logs will have to be made to fit the engine measurements. Bolt them securely to the tunnel sides, first fastening in a heavy spacing piece between the tunnel sides under the engine. After the engine is installed and the piping completed, finish up the woodwork in the cockpit, then cover all the decks with 6-ounce duck using copper tacks for fastening it. After giving the duck a good priming coat of paint, put on the quarter-round molding and also the half-round rub strip.

A tight door, or hatch, about 9 inches square, in the aft tunnel cover, would be of use when changing the propeller. If it is decided to put one in, place its forward edge about over the center of the propeller hub. Fasten a $\frac{3}{4}$ -inch cedar block, the same size as the hole, to a plate of 16 gauge bronze 11 inches square, letting the bronze project 1 inch beyond the edges of the cedar block. The plate is fastened to the tunnel cover with $\frac{3}{4}$ -inch round-head brass screws. The holes through the plate for these screws should be spaced 1 inch to centers and $\frac{3}{8}$ inch in from the edge. Use rubber packing or canvas and white lead under the plate.

TABLE OF COSTS OF SAND CRAB

HARDWARE, FITTINGS AND ENGINE

| | |
|---|----------|
| 2 $\frac{5}{8}$ " x 5" galvanized lag screws for knee..... | \$0.10 |
| 5 $\frac{5}{16}$ " x $\frac{3}{16}$ " galvanized bolts for tunnel sides to knee.. | .20 |
| 12 $\frac{3}{8}$ " x $\frac{1}{2}$ " galvanized bolts for tunnel sides to engine logs..... | .65 |
| 8 $\frac{5}{16}$ " x $1\frac{1}{2}$ " galvanized carriage bolts for rudder hanger | 1.00 |
| 10 $\frac{1}{4}$ " x $2\frac{1}{2}$ " galvanized carriage bolts for tunnel cover to bottom..... | 1.00 |
| 2 8" galvanized boat cleats..... | .75 |
| 1 pair $\frac{5}{2}$ " galvanized bow chocks..... | .30 |
| 1 pair 4" galvanized stern chocks..... | .30 |
| 2 $\frac{5}{8}$ " diam. galvanized bow flag pole socket..... | .25 |
| 1 1" diam. galvanized stern flag pole socket..... | .35 |
| 40 ft. $\frac{3}{8}$ " diam. covered wire tiller rope..... | 2.40 |
| 2 $\frac{5}{8}$ " galvanized deck halyard blocks..... | 1.50 |
| 8 $\frac{5}{8}$ " galvanized eyes on plates (fair leaders)..... | .50 |
| 1 bilge pump..... | 3.00 |
| 50 ft. $\frac{5}{8}$ " diam. rope..... | 1.25 |
| 50 ft. $\frac{1}{2}$ " diam. rope..... | 1.00 |
| 1 26-lb folding anchor..... | 5.20 |
| 1 combination light, galvanized..... | 5.00 |
| 1 stern light, galvanized..... | |
| 1 fire extinguisher..... | |
| 1 horn..... | |
| 1 life belt..... | |
| 3 extra life belts..... | 3.00 |
| 5 yds. 6 oz. duck, 30" wide, 15c..... | .75 |
| 2 $\frac{3}{8}$ " x 14" galvanized rods, thread each end for engine bolts..... | .40 |
| 1 $\frac{3}{8}$ " x $16\frac{1}{2}$ " galvanized rods, thread each end for tie rod | .25 |
| 6 $\frac{3}{8}$ " galvanized nuts for rods..... | .12 |
| 1 $\frac{1}{2}$ lb 3" galvanized boat nails..... | .12 |
| 3 lb 2" galvanized boat nails..... | .24 |
| 2 lb $1\frac{1}{2}$ " galvanized boat nails..... | .16 |
| 4 doz. $2\frac{1}{2}$ " No. 14 galvanized screws..... | .40 |
| 4 gro. $1\frac{1}{2}$ " No. 12 galvanized screws..... | 1.60 |
| 2 gro. $1\frac{1}{4}$ " No. 10 galvanized screws..... | .70 |
| 1 gro. 1" No. 10 galvanized screws..... | .30 |
| 1 piece 11" x 11" No. 14 gauge sheet brass..... | 1.00 |
| 1 piece 2" x 14" No. 14 gauge sheet brass..... | .25 |
| 4 doz. $\frac{3}{4}$ " No. 10 brass wood screws, round head..... | .40 |
| 1 steel rudder, finished..... | 6.50 |
| 1 bronze shaft hanger and pattern..... | 7.50 |
| 1 4" x 4" single-cylinder two-stroke engine complete with bronze propeller, bronze shaft, stuffing-box, coupling, carbureter, oil and grease cups, spark plug, coil, wire, switch, dry cells and muffler..... | 69.00 |
| 9 ft. copper tubing and connections..... | 3.25 |
| 1 copper gasoline tank..... | 7.50 |
| 1 3" diameter hand-hole plate, bronze..... | 3.00 |
| Water pipe, fittings and hose..... | 1.25 |
| Exhaust pipe and fittings..... | .75 |
| Total..... | \$133.19 |

LUMBER

| | |
|--|--------|
| Stem, oak, 1 piece $3\frac{1}{4}$ " x $6\frac{1}{4}$ " x 2' 6" long..... | \$0.70 |
| Knee, oak, 1 piece 2" x $6\frac{1}{4}$ " x 1' 3" long..... | .30 |
| Frames, oak, 150 running feet $\frac{3}{4}$ " x $1\frac{1}{4}$ "..... | 2.50 |
| Bottom, etc., cedar, 75 sq. ft. $\frac{3}{4}$ " thick..... | 6.00 |
| Tunnel cover, cedar, 1 piece $\frac{3}{4}$ " x 14" x 10' long..... | 1.00 |
| Tunnel sides, cedar, 2 pieces $\frac{3}{4}$ " x 8" x 19' long..... | 1.08 |
| Tunnel sides, cedar, 2 pieces, $\frac{3}{4}$ " x 6" x 9' long..... | .72 |
| Sides, cedar, 5 pieces $\frac{5}{8}$ " x 10" x 20' long..... | 6.40 |
| Coamings, cedar, 2 pieces $\frac{1}{2}$ " x 6" x 16' long..... | 1.28 |
| Chines, spruce, 2 pieces $1\frac{1}{4}$ " x $1\frac{1}{4}$ " x 19' long..... | 1.12 |
| Clamps, spruce, 2 pieces, 1" x $1\frac{1}{4}$ " x 20' long..... | .80 |
| Seats, pine, 20 sq. ft. $\frac{3}{4}$ " thick..... | 1.60 |
| Floor, pine, 25 sq. ft. $\frac{1}{2}$ " thick..... | 2.00 |
| Deck, pine, 40 sq. ft. $\frac{3}{8}$ " thick..... | 2.40 |
| Bulkheads, pine, 15 sq. ft. $\frac{3}{8}$ " ceiling..... | .90 |
| Corner pieces, pine, 2 pieces, $1\frac{1}{4}$ " x 4" x 9' long..... | .72 |
| Spacing piece, pine, 1 piece, $1\frac{1}{2}$ " x 10" x 1' 3" long..... | .32 |
| Engine logs, pine, 2 pieces, 3" x 3" x 3' long..... | .48 |
| Bulkheads, pine, 1 piece $\frac{3}{4}$ " x 12" x 8' long..... | .56 |
| Deck beams, pine, 1 piece $\frac{5}{8}$ " x 5" x 16' long..... | .48 |

Total.....\$31.36

133.19

Grand Total.....\$164.55

GENERAL MANAGEMENT OF GAS ENGINES AND THEIR TROUBLES

A. L. Brennan, Jr.

PART II—(Concluded)

IN regard to *lubrication* or the suitable amount of oil to be fed an engine, no fixed amount can be given, since the local conditions are always vastly different. Always be careful when cutting down the supply of cylinder oil to give the engine time to note the change in the exhaust, as otherwise you might not feed enough oil and the piston would be liable to seize. Engines which oil from the base will sometimes smoke for a short time after putting in a supply of oil without any detriment whatever. The idea of lubrication is to have a thin film of oil between all moving parts irrespective of how slow they may travel or how light their load. A preparation known as "oil-dog," which has been on the market for several years, has given exceptionally fine results; in fact, wear on correctly adjusted pistons and other moving parts can be reduced to practically nothing by using this compound, which is composed of the best cylinder oil and graphite, this graphite being held in solution in such a fine state that it will work through thick paper with the oil. This condition was not at once realized by the makers but was brought about by persistent effort, for graphite is universally and favorably known as a most excellent non-wearing medium and is put up in many forms—liquids, pastes, and in dry flakes. It is a most excellent preventive for bearings which have a tendency to overheat, and is preferable to the non-fluid oils and hard greases as far as reducing friction only is concerned; but still, the other oils and greases give excellent results.

The various *ignition* systems to be found on the present-day engine are to the uninitiated extremely complicated, yet this is not really the case at all, as will be readily demonstrated by a little study or instruction in connection with the several points involved. A few words in regard to different cases of trouble incident to the make-and-break and jump-spark systems of ignition will suffice here.

If your plugs are failing to produce a spark sufficient to insure steady running through a decrease in the electrical current, or supply, caused either by nearly-run-out batteries or generator failing to supply a strong current, there is a remedy which usually works to advantage, and that is the bringing the points of your spark plugs nearer together so there will not be so much resistance to overcome. Of course, this lessens the efficiency of the spark considerably, and it will not be so intense as before when the electrical source was at its maximum, but at the same time will serve to keep your engine running for a considerable period, hitting on all cylinders, which would not be the case if some alteration was not made. Dry cells, when nearly exhausted, recuperate very rapidly to a certain extent, and it will be found that cells which are given a rest of but a few hours will

supply sufficient current for a good spark for some little time; but it is not at all wise to rely on nearly exhausted cells, for no matter how careful you are in reducing the spark gap and shortening down the vibrator on the coil in order to reduce the current used to a minimum, still they cannot possibly give continuous service, particularly in the case of four and six-cylinder machines. A great saving in battery current combined with high efficiency is realized by connecting the dry cells in "series multiple." The greater the number of sets used, the greater will be the results by increased ratio of about three to one. The method sounds perhaps very complex, but in reality is very simple, and is readily comprehended. Suppose you require five cells to start on, or run your engine on. No doubt you would think ten, fifteen, or even twenty cells would be too many, and you would be in danger of ruining your coil possibly. Now, this is not the case, for in wiring cells "series multiple"—no matter how many cells are used—the voltage is limited to the number of cells in one set of the series. This is brought about by connecting the cells in sets of the same number you would use if only using one set, and then connecting the positive and negative parts of the several sets together. This will increase the amperage to equal all the cells while the voltage will equal only one set. Although the amperage is equal to all the cells together, they will give off even more strength and a longer power than the same number of cells used in any other way. Dry cells are unquestionably the best reserve battery to have on hand. They are inexpensive, light, compact, and give good results as long as they are kept in a dry place, change of temperature not affecting them, and moreover, a distinct advantage lies in the fact that they give ample warning before running out. A storage battery gives excellent results for ignition purposes but they are fairly large and clumsy and require repeated charging, sometimes at short intervals, while dry cells can be had in nearly every town one visits to replace weak ones which are discarded, as it is rather impractical, although quite possible, to recharge them. Several of the leading magnetos are used to start on and sometimes, especially in cold, damp weather, repeated spinning of the engine is necessary before the machine will start. This is partly due to the fact that a magneto does not generate so large a spark when being turned over by hand as it does when the engine is running at a fair speed, which is in turn clearly illustrated on many engines which require batteries to start on. Bearing these facts in mind, it is not a bad scheme to have a set of dry cells on hand which can be used in case of an emergency.

Jump-spark or high-tension systems are very prone to *short-circuit*, as electricity always follows the path

offering the least resistance, especially in the case of a fluctuating induced current such as the jump-spark system is, and the troubles of this nature are usually found to occur at the spark plugs, due to the plugs being subjected to elements interfering with the correct direction and termination of the secondary current. The principal sources of short-circuiting are due to the following: breaking or disintegration of insulation, cracking of porcelain, oil soaking, deterioration of cement filling, or metallic contact in mica plugs; or to carbon and sooty deposits between the sparking points or electrode surfaces. Plugs which are broken or otherwise damaged should be renewed, as they will be very liable to give out when least expected, and at best will not give as good service because some of the current will probably be lost before reaching and crossing at the spark gap. On the other hand, plugs which are dirty through carbon deposits or other causes, can be readily cleaned with gasoline and then the points squared with a fine flat file and afterwards polished with fine emery cloth. Of course, everything depends upon complete circuits—that is, all terminals must be secured at their respective binding posts. An essential is well insulated wires either in the primary or secondary circuit. This is very beneficial in receiving high efficiency from the batteries and coil as well as from the magneto. Moreover, a little care taken to prevent the wires from coming in contact with one another, or other surfaces, and becoming partly or wholly short-circuited, will be time and trouble saved. High-tension wires in particular should be kept separated, as an induced current is liable to be set up in the dead wire next the live one, which will result in both plugs firing simultaneously. Faulty ignition is undoubtedly responsible for the majority of failures to start, although the other causes sometimes present similar symptoms. Engines which fail to start after going through the customary preliminaries are unquestionably out of adjustment. If good compression is evinced by hard cranking, the chances are that the trouble is in the ignition system, although the carbureter may be responsible. The following divisions of the ignition system are all subject to defects which may be responsible for non-starting. In the primary circuit, through a loose connection, broken or crossed wire, or wires short-circuited through any cause—or the trouble may be in the coil or timer—the tremblers and points of vibrating coils require considerable attention. Weak batteries, or loose connections in the secondary circuit all play their important part as do fouled spark plugs—non-starting being so often attributed to the latter, that they should be tested as follows:

Disconnect the secondary wire from the plug and then reconnect and lay the plug on the cylinder or engine frame and put that section of the ignition in circuit by putting the switch in contact, and then cranking the engine over to the firing point, or else by moving the timer. A rapid, violent spark should appear between the points of the plug. If no spark appears, disconnect the wire from the plug and scratch the terminal over the cylinder, and if you get a good spark, the trouble is in the plug. On the other hand, if no spark appears there, you have to go back still further for the seat of the trouble. If you are using a vibrating coil, notice if you are getting a good contact at the vibrator, which is demonstrated by a powerful buzzing. If not, your coil is at fault, either by

faulty adjustment, loose connections, weak batteries, or short-circuits inside the primary or secondary windings. Substituting another coil or a separate unit of the same coil will quickly show you if the fault you are seeking lies in the coil. In an engine of four or six cylinders such as are nearly always used on the present-day high-speed boats, failure to start is rarely due to dirty plugs, as there are invariably two or three plugs which will keep the engine in its cycles, and it is fairly evident that the ignition is elsewhere disarranged. The usual cause is a weak battery but faulty coils and wiring may be responsible. Practice will show that when an engine has been run and left in apparently good order, and it fails to start readily, the cause is elsewhere than in the ignition. Oftentimes the points of spark plugs are set so far apart that when the battery suddenly grows weak, they will fail to perform their functions. It is not feasible to state a specific distance for the spark gap, but it is fair to assume that one thirty-second part of an inch is about correct as an average estimate, and it should, under no circumstances, exceed one-sixteenth. However, if on attempting to start, you find that the engine picks up its cycles but fails to fire in all the cylinders, it is only necessary to locate the missing ones and repair or replace the spark plugs, as the chances are that the plugs are responsible. In determining the missing cylinder, or cylinders, the easiest and quickest way is to open the relief cocks and if a violent and sharp exhaust takes place the cylinder is working all right, but if this is not the case, it is not generating power. Occasional misfiring during operation will be easily recognized by irregular and uneven running, and after firing or explosions in the muffler resulting from the unburned gas of the missing cylinders being fired into the hot exhaust where it ignites, generating not enough force to do any harm but creating considerable noise. Continued missing is also detected by the difference in temperature of the exhaust manifold where it connects with the faulty cylinder. Misfiring is also the result of loose connections and although having symptoms similar to those manifested by faulty plugs, still they are in no way related. Short-circuits of this nature are not always constant, that is, the plug may miss through the shaking loose of a wire and misfire for a short time, but the vibration of the engine may cause the circuit to close and the engine will run apparently with everything O.K. Another form of misfiring is the result of these short-circuits, which may be interrupted by the engine vibrating, as in the case of loose connections. This short-circuit is similar and yet differs from an extra spark gap in the fact that the short is in parallel while in the instance of ground taking place short of the spark plugs the short is what is known as in series with the plug gap. Misfiring resulting from weak batteries is readily recognized by fitful running and most particularly when the engine is speeded up it is found to run even in a more erratic way due to the battery being unable to supply sufficient current to meet the demands of high speed. In the case of magnetos or other mechanical generators that supply sufficient current at low speed, but fail at high speed, the seat of trouble can usually be attributed to loose, worn, dirty, or otherwise damaged carbons or brushes, short or partial short-circuits, worn or faulty commutator, or demagnetized magnets. Another cause for misfiring at

increased revolutions may be mentioned which is, not having the tremblers on the coil adjusted to give sufficient rate of vibration. Of course, there are still other causes which have to do with the ignition system, such as worn or damaged points in the timer which fails to make suitable connections to insure large sparks commensurate with the requirements of rapid operation. Then misfiring can be traced to defective mixtures which fail to ignite readily by being either too rich, or too weak, and in consequence are fired in the exhaust. Explosions of this character sometimes produce rather startling results but, however violent they may seem, they cannot do any harm as they are not held in check, although if they occur at short intervals, they are apt to cause the exhaust to heat a little more and possibly produce a slight back pressure on the exhausting gases from the cylinders but not enough to make any material difference in the efficiency of the engine. Since the nature of the exhaust of a gas engine is all dependent upon good results, care must be taken not to allow the exhaust manifold piping and mufflers to become clogged, as the power will be greatly reduced. This point is readily understood when we consider the advantage of a cutout in the exhaust which increases the output of the engine so considerably that a car can sometimes climb a hill on high gear that would be a difficult task on first speed, if the cutout was not made use of. Carbon deposits and incrustations are sure to form in the exhaust if care is not exercised to use the correct amount of good oil and the proper mixture of gas.

In presenting a list of engine troubles one is apt to contend with every day, I have deemed it best to classify them in their respective groups. Of course, in some cases, it is not really feasible to give every trouble which a certain part—a magneto, for instance—is subject to, as, in the majority of instances, it is a special fault which can readily be found out, and if a long list were given, would often present a rather confusing aggregation of troubles. The reader will find that although the following lists are intended primarily for one to ascertain at once where a certain fault in the engine or equipment can be found, yet at the same time it is well to bear in mind the fact that troubles of apparently the same order are often the result of non-adjustments or other faults which have no relation to one another. One of the principal drawbacks that operators of gas engines have to contend with, is irregular firing, which is usually the result of either a faulty adjustment, water in carbureter, dirt at needle valve, weak batteries, or dirty spark plugs—but will also result from any of the following reasons: broken-down insulation or otherwise damaged plugs, poor connections, coil out of adjustment, or damp, points pitted, or dirty; springs on tremblers weak or too stiff, water in cylinders, timer worn or broken, water or oil in magneto, magneto slipping, magnets or magneto weak, magneto carbons or brushes dirty, or tension not strong enough, allowing too much auxiliary air through air valve, gasoline supply partly stopped up by dirt in tank or supply pipe, strainer or carbureter, tank air-bound; inlet valves sticking, or check in carbureter at fault.

Any of the above troubles will make starting very difficult and, in some cases, will hold an engine down altogether, but it will be found that the defects usually responsible for a non-start are those first men-

tioned, viz., weak spark, lack of gasoline, too much gasoline, or engine bearings or pistons frozen due to insufficient lubrication. When the engine runs with apparent regularity but fails to develop its greatest power, this lack of lubrication is generally responsible, although it may be found that other faults are playing a hand, such as compensating valve on carbureter not working rightly, piston rings badly worn or gummed with carbon resulting in poor compression, worn cylinders, warped and pitted valves, weak valve springs, reduced lift on exhaust valves, or exhaust manifold, pipe, or silencer partly choked with scale—the carbon deposits of burned oil, etc.

Hissing sounds are nearly always the result of broken spark plugs, cracked exhaust pipe, loose connections on exhaust, relief taps partly open, or partly blown out gaskets, all of which result in a certain amount of lost power. Weak or broken piston rings will often allow the ignited gas to rush by and heat the crank-case. Cracks in the cylinder heads or cylinder walls will generally culminate in leaks which can be readily traced to their source. When an engine stops suddenly without backfiring, it is almost certain that a broken connection was the cause. On the other hand, if there are one or two weak explosions, or backfiring in the intake manifold, a cutoff of the gasoline supply is practically assured, which is due to the tank being air-locked, dirt or water in the float chamber, needle valve stuck, or compensating valve hung up or broken. Still other causes may be responsible for the stopping of an engine in this manner, viz., broken spark plug, poor contacts at timer, short-circuit in secondary wires, magneto slipping, or valves stuck. While if the engine gradually slows up while misfiring, the fault is generally attributed to poor contacts at coils, faulty carbureter, or dirty spark plugs.

Explosions in exhaust manifold or silencer are in most cases the result of an overretarded spark, lean gas mixture, broken, warped, pitted, or stuck exhaust valve, poor timing, or plug missing, and allowing new gas to enter exhaust. These troubles also may result in gradual slowing up accompanied by misfiring. Fouled plugs or cylinders are due to overrich mixture, or too much or too poor circulation.

Knocking is a common source of annoyance and usually indicates that some of the moving parts have too much play, which results in lost motion, the parts most liable to cause this trouble being the piston pin and crank-end bearings of the connecting-rods, fly-wheel loose on shaft, loose cylinder or crank-case, or half-time gears, or shafts badly worn. Defective lubrication can invariably be held responsible for the majority of troubles in this department, but not in all instances, and it can also be held responsible for pre-ignition, which is the result of the carbon deposits on the inside of the walls of the cylinder piston head, and the combustion chamber becoming incandescent and igniting the gas before the piston has completed the compression stroke, overadvanced spark or overrich mixture which ignites very slowly, will also bring about similar results.

Intake manifold and carbureter explosions are nearly always produced by weak gas mixture, which burns so slowly that the inlet valves open and the flame lights the new gas in the intake pipe, while broken inlet valves or springs, valves or seats badly pitted, valves warped, springs hung up, or incorrectly

timed, or overretarded spark are all responsible at certain times for the disturbance.

In most cases, heating is caused by the circulating pump failing to perform its functions, but more often it is the direct result of an overretarded spark and too much throttle. Squeaks and other grinding sounds are the result of faulty adjustments to bearings, or lack of lubrication.

The modern gas engine, as the gasoline internal-combustion engine is generally called, is the product in most instances of the finest materials put together by skilful workmen in the best possible manner, yet still it is subject to numerous troubles and undoubtedly will remain so as long as it is a complicated mechanism. There are certain natural laws in mechanics which cannot be overcome, for example, running without friction and preventing loosely assembled parts from revolving or moving in any way without vibration. Hence the necessity of thoroughly lubricating all moving parts irrespective of how slowly they may travel, or how slight the load they may carry. The importance of preventing loose motion known as lost motion, is at once apparent, and too much stress cannot be laid on the most important point. Oftentimes a connecting-rod bearing main journal or any of the minor bearings can be saved and give good service for years by looking after them when the first signs of looseness occur.

To take up the question of knock, which is quite prevalent in the modern engines in varying degree, due to the existing conditions which vary greatly yet usually have the same source. A knock is frequently extremely hard to locate, as the same sound can be generated in several ways. A loose flywheel is usually responsible yet it may be that the ignition is advanced

too far, or pre-ignition from incandescent carbon, short-circuits, or overheated engine, due to breakdown in the cooling system. Lack of lubrication or poor oil will cause a knock, but it is not such a distinctive sound as something loose or broken will give. Too rich a mixture, or water in the firing chamber will often cause an uneven running motion, which slightly resembles a knock, while worn bearings will not infrequently cause an engine to act in a most alarming way. Always be careful not to set up on a badly worn bearing too much, or you are in danger of throwing the whole shaft out of line and ruining the main bearings. Sometimes when the compression is not uniform in all the cylinders, the engine appears to have a slight knock while in reality it has not, the cylinders with the better compression giving stronger power strokes than the weaker ones cause this irregular running, which is mostly attributed to loose parts. Hissing sounds, as was remarked before, are mostly due to loose or broken spark plugs, cracked exhaust pipe, looseness in the exhaust manifold, open compression taps, worn gaskets, or loose igniters. The correct amount of good oil in the cylinder, and plenty of hard grease or graphite paste in the gears and other parts will go a long way towards preventing wear and the subsequent noises.

Of course, it is not by any means essential to learn all the foregoing troubles by heart, but the knowledge of the whims of an engine will quickly enable one to promptly and accurately locate a defect by its indications, which are invariably the forerunner of more serious complications. These indications are usually in the form of various sounds and although of varying magnitude, are always discernible from the ordinary sounds generated by the working of an internal-combustion engine.



Built from Rudder Plans by Mr. Carl Tuttle, of Berlin Heights, Ohio

METALLURGY FOR THE ENGINE BUILDER

Seth G. Malby, M. E.

THIS highly interesting and practical subject seems to be but little understood by power-boat men at large, and a knowledge of the underlying principles and theory governing the manufacture and treatment of metals will no doubt prove interesting to the laymen and a valuable adjunct to any engineer.

The subject might at first appear very complicated. However, the aim of the writer is to present these things as plainly as possible and to aid the reader in forming a mental picture of what is occurring and what actually exists.

When we first began to deal with metals the engineer was the only man in the field. He made his tests on what looked like iron, steel or brass, and compiled his results therefrom. We still have volumes on the tensile strength of iron, steel and brass which are practically useless because we do not know just what kind of metal the tests refer to. Next, the chemist found this a productive field, and he made experiments on different mixtures of metals and compiled the data in regard to their physical properties. Now we have the metallurgist, who goes even farther than any of the rest. He studies the microstructure of metals, the chemistry of metals and the physical properties of metals, and combining all three makes our chain complete. In this line of work at least the physical chemist is coming into his own.

This is so large a subject that I can but briefly deal with it here, and this is not meant for a reference article, the object merely being to explain away if possible some of the mysteries of bygone years. The work may conveniently be divided as follows:

- 1st. A study of iron and steel, their manufacture, heat treatment, etc.
- 2d. Alloys in general, with special references to brasses and bronzes.
- 3d. Composition and theory of bearing metals, and lastly, a few words on that all-important subject, Corrosion.

IRON AND STEEL

The chief source of iron is from the red oxide of iron known as haematite. This ore is mined in several localities in the United States, very large deposits existing in what is known as the Lake Superior region. The ore is sent to the blast furnace where it is reduced by means of coke and limestone. The burning of the coke supplying the necessary heat to melt the mixture, and the limestone forming a compound with the sulphur which passes off in the slag. This iron is run out of the blast furnace and cast into pigs and is the cast iron which is used in most of our foundries.

Steel is refined cast iron, that is, removing the impurities existing in cast iron and in the case of alloy steels, adding some other impurities. It is not desired to give the impression that impurities are necessarily harmful; some are, and some are not; it all depends upon what use is to be made of the fin-

ished product. Bessemer, open-hearth, crucible, electric, etc., are merely different methods of arriving at the same end, that is, the purification of the cast iron. Acid and basic refer to the furnace lining used in the different processes. I cannot go into a discussion here as to what is the best kind of steel, as it will be seen that the finished product will depend upon its chemical composition, the term being used in its general sense, and not upon the method of manufacture.

Wrought iron is cast iron refined to the highest degree; that is, it is essentially pure iron without impurities existing in it chemically combined. It, however, contains slag which has little effect upon its most useful physical properties.

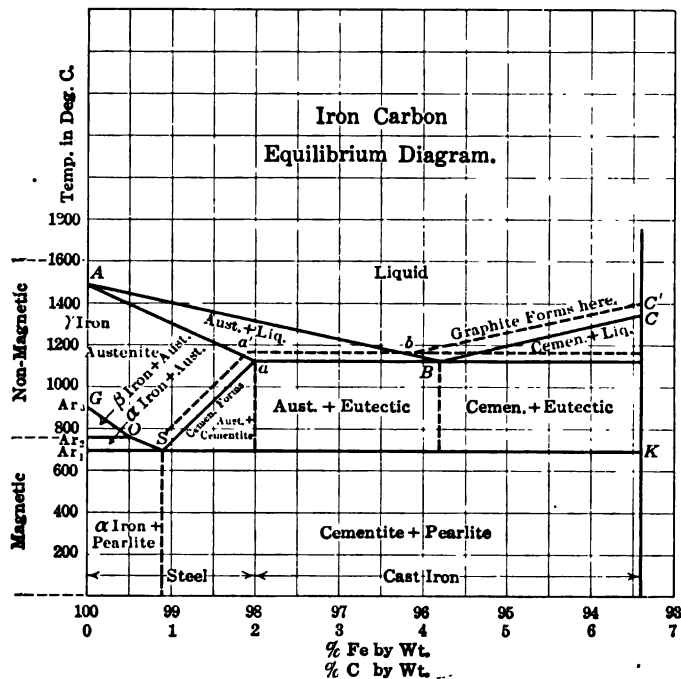
Steel is primarily an alloy of iron and carbon, the carbon existing in the combined state up to 2%. Steel may be distinguished from wrought iron by the fact that it contains carbon, manganese and no slag, while wrought iron contains little carbon, very little manganese, and relatively lots of slag. The existence in steel of impurities other than carbon may affect the amount of carbon iron may contain in the combined form, but steel is essentially an alloy of pure iron and up to 2% of pure carbon.

Cast iron is iron containing more than 2% carbon, the carbon existing either in the combined state as cementite, or partly in the combined state and partly in the free state, or as graphite. The rate of cooling, the thermal treatment and the presence of impurities will determine the distribution of the carbon; that is, whether it exists in the cementite or as graphite.

The above definitions serve well for a theoretical understanding of the difference between wrought iron, cast iron and steel, but in practice we have to alter them considerably, and reference must be made to the definitions as given by the American Society for Testing Materials. Suffice it to say that these definitions depend upon the mechanical treatment which the metal is capable of, which in turn depends upon the chemical composition. So we see that the only way to be perfectly sure of what we are to get when we specify wrought iron, steel or cast iron, is to specify also its composition; and if the article is to be finished we must also specify the heat treatment.

HEAT TREATMENT OF STEEL AND IRON

To understand the heat treatment of steel, we must understand what is known as the iron-carbon diagram. (As a foreword to this diagram, the writer wishes to state that he believes that this one explains most of the problems of the heat treatment and structure of the iron-carbon alloys. If in some other book or periodical you find a different diagram, please do not condemn me for publishing things which are not true. This diagram gives me a better idea of what is happening than any of the rest, and while it may not be scientifically perfect, it will at least answer for a working basis.)



The Notation at Bottom of Cut Refers to Lower Lines of Figures

The iron-carbon diagram is plotted with temperature in degrees Centigrade as ordinates (to change to degrees Fahrenheit, multiply by 1.8 and add 32°), and the abscissa representing alloys of iron and carbon from 100% iron and 0% carbon to 93.4% iron and 6.6% carbon.

To illustrate what happens when the liquid metal solidifies we will consider the freezing of some typical alloys.

Take an alloy with say .2% carbon. The liquid freezes as a solid solution of carbon in *gamma* iron. *Gamma* iron dissolves carbon the same as water will dissolve salt. *Alpha*, *beta* and *gamma* iron are allotropic conditions of iron varying with the temperature, the same as graphite and the diamond are allotropic conditions of carbon; allotropic meaning having the same chemical composition, but existing in a different chemical and physical state; that is, in the various states in which an element may exist certain chemical and physical properties will be peculiar to this state. The alloy on cooling will be austenitic until the line G-O-S is met, when *beta* iron or ferrite begins to precipitate out, as will be seen the loss of the iron by the austenite, will raise the percentage of carbon existing in the austenite, and as the temperature falls, the austenite deposits more and more ferrite and hence grows relatively richer in carbon. An illustration might serve to make this point clear. Suppose we had 75 pears and 25 apples, making in all 100 pieces. You then have 75% pears and 25% apples. You sell 50 pears; you then have remaining 50 pieces: 25 pears and 25 apples, or 50% pears and 50% apples; the pears sold representing the deposited ferrite and your remaining mixture, the austenite. It will be understood, however, that it is impossible to distinguish between the iron and the carbon in the austenitic stage, this being, as before explained, a solid solution. The illustration ought to make it clear as to how the percentage of carbon increases

in the austenite when the ferrite is precipitated out. When the temperature has dropped to 690° C., the metal can no longer exist as austenite, and the remaining austenite in the above alloy breaks up into a mechanical mixture of ferrite and cementite. (Cementite is a compound of iron and carbon with a formula Fe₃C). This mechanical mixture is known as pearlite.

An alloy with .8% carbon freezes in exactly the same way, except instead of precipitating *beta* iron along G-O-S it precipitates *alpha* iron direct from the austenite. We have again in our cold alloy ferrite and pearlite, but much more of the pearlite than in the case of .2% carbon.

An alloy with .9% carbon freezes first as austenite and on reaching S. breaks up into pearlite without precipitating out in excess either ferrite or cementite.

Therefore, slowly cold alloys of iron and carbon containing up to .9% carbon and down to 99.1% iron, contain ferrite and pearlite.

The freezing of a 1.2% alloy is the same in its upper range as the .2%, .8% and .9% alloys; that is, it freezes as austenite. As the metal cools it strikes the line aS and cementite begins to precipitate out, the same as the ferrite does, only this constituent contains carbon and iron, that is, 93.4% iron and 6.6% carbon. In other words, we are decreasing our percentage of carbon in the austenite, and increasing the percentage of ferrite or iron and hence the composition of the austenite moves to the left along line a-S. This alloy then cools to 690° or to S. and deposits pearlite the same as the other alloys.

The iron becomes saturated with carbon when two per cent. is reached, an alloy containing 2% will freeze exactly the same as the one with 1.2%, only we would have more cementite and less pearlite.

Therefore, alloys between .9% and 2% carbon and 99.1% and 98% iron will contain cementite and pearlite when slowly cooled.

Next consider alloys between 2% and 4.2% carbon, or the cast iron, take an alloy with 3% carbon and 97% iron. As the liquid cools it precipitates out first solid austenite. This will impoverish the liquid of iron and hence raise the percentage of carbon, and so, as the liquid alloy cools, the composition of the liquid moves to the right along the line A-B until 1,125° C. is reached where the liquid breaks up into saturated austenite containing 2% carbon and cementite. As the temperature falls, the cementite remains in its original state, and the austenite travels along the lines a-S, depositing more cementite until S. is reached, when the remaining austenite breaks up into pearlite. With more than 4.2% carbon the liquid will first precipitate cementite, and the composition of the liquid moves to the left along the line C-B, finally breaking up into saturated austenite and cementite, as before, at 1,125° C. In cooling further, the austenite proceeds as before, that is, depositing cementite, then breaking up into pearlite.

However, if the cooling is slow, the liquid alloy containing from 2% to 6.6% carbon and 98% to 93.4% of iron will break up into graphite and austenite at 1,125°, instead of austenite and cementite. That is, the cementite formed at 1,125° is really unstable and can only be gotten by very rapid cooling. The formation of graphite is shown by the dotted line C'ba.

Martensite, Troostite, Sorbite and Osmondite are the names given to the structures formed by the decomposition of the austenite into either ferrite, cementite or pearlite. These constituents, if they may be called this, are not entities, but are probably merely mixtures in different proportions of ferrite or pearlite or cementite with austenite.

PHYSICAL PROPERTIES OF CONSTITUENTS AT ATMOSPHERIC TEMPERATURE

Ferrite.—Soft, most ductile, maximum elongation, weakest.

Cementite.—Glass hard, brittle, probably strong if pressure is slowly applied.

Austenite.—Hard (hardness, however, depending upon the carbon content), maximum strength, minimum elongation, minimum ductility.

Martensite.—Hard and brittle.

Troostite.—Hard but less brittle.

Sorbite.—Strong and tough.

Osmondite.—(?)

HARDENING, TEMPERING AND ANNEALING OF STEEL

By examination of the physical properties of the constituents which a piece of steel may have, we see that if by some means these constituents could be preserved, the steel would necessarily have the physical properties peculiar to the constituents. The changes in the constituents of a steel cooling is relatively slow, and if we could by some means prevent these changes, we would have any of the constituents desired present. Such is the theory of quenching. If we have a steel of a certain composition and apply heat until the sole constituent of the steel is austenite, and then plunge the piece into water or some other substance, having a temperature below 690° or the transformation point, we would be able to retain the austenite. However, the lower the temperature of the quenching bath and the speed with which it will abstract heat from the steel determines the amount of retained austenite. Austenite is hard, maximum strength, minimum ductility, minimum elongation. Therefore, to retain these qualities, quench above the line G-O-S-K. To anneal steel, heat above line G-O-S-K, and slowly cool. The reason for this will appear later. Annealed steel has minimum strength, maximum elongation, maximum ductility. There evidently must be some state having properties between that of austenite and annealed steel which will satisfy our conditions. This may be gotten by reheating, that is, by allowing some of the austenite to change into pearlite, the natural constituent of annealed steel. This is the theory of tempering.

For a steel having a carbon content above .9% it is usually desired to retain martensite which is harder than austenite. This is the reason why these steels are heated just above 690° C. This metal is usually used for cutting tools, and hence must be very hard.

To refine steel, heat just above line G-O-S-K. To refine is meant to secure minimum grain size or a fine fracture. If heated above this line the grains grow in size and greatly reduce the elastic limit of the steel. When the piece cools it retains the grain size characteristic of the temperature to which it has been heated. To illustrate, steel with .8% carbon. Heat to 1,000° C. Slowly cool or quench, large grain

size low elastic limit, reheat to 700°, slowly cool or quench, minimum grain size, high elastic limit. High and low being relative terms.

This coincides with our hardening temperatures, so we can both harden and refine by quenching from a temperature not far about line G-O-S-K.

It is a difficult matter to entirely suppress these physical changes in the steel, that is, by quenching just above G-O-S, not all the austenite can be retained, but some martensite, troostite or sorbite, and even ferrite may appear. Therefore we must go a little higher practically and theoretically and 900° C. is usually taken as a standard temperature for quenching steel having a carbon content less than .9%. These are the steels usually used in the construction of nearly all members of gas engines, and steel work in general.

Warping is caused by strains set up in the metal by unequal contraction due to the different rates of cooling of the different parts. These internal stresses may be relieved by heating the piece just above line G-O-S-K or annealing, and then slowly cooling. All pieces used unhardened should be annealed to relieve these stresses, and also to secure minimum grain size. It is obvious we cannot anneal or wholly get rid of internal stresses when the piece is quenched, and clamps, chills, etc., must be applied so that the metal will cool as uniformly as possible.

HEAT TREATMENT OF CAST IRON

As in the case of steel, we see that if cast iron were heated up above 690° C., the pearlite would change into austenite, and the higher the temperature the more the cementite formed along the line a-S would change to austenite. Quenching would then retain the austenite.

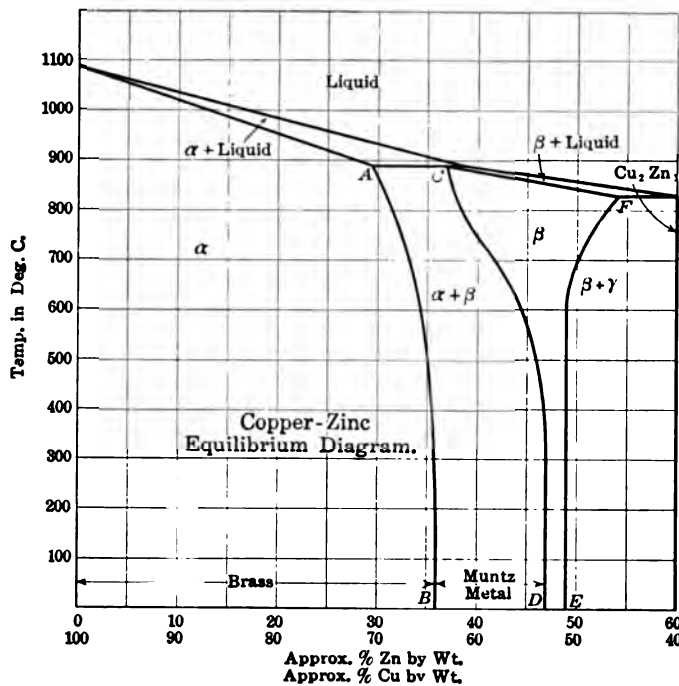
However, the chief practical application of the heat treatment is in so regulating the cooling of cast iron that the correct amount of graphite is allowed to form and no more than to satisfy the requirements of our case. This can be done by regulating the rate of cooling past b; that is, at the temperature where graphite is supposed to form. When cast iron is heated above the line S-K, the following reaction seems to take place: $\text{Fe}_3\text{C} = 3\text{Fe} + \text{C}$; that is, the cementite breaks up into its components, iron and carbon. This reaction is greatly aided by the presence of silicon, and in practice the silicon content is used to regulate the amount of graphite desired.

White cast iron is iron with a white fracture, and has all the carbon in the combined form; that is, it has been rapidly cooled past b.

Malleable cast iron is white cast iron which has been heat-treated; that is, heated above 690° C. for some time, and the above reaction allowed to take place until the iron consists of ferrite and carbon. Carbon in this state is known as temper carbon. The malleability of these castings is due to the absence of the constituent cementite. To further aid the reaction and actually remove the carbon, the pieces are packed in iron oxide and the following reaction takes place: $\text{Fe}_2\text{O}_3 + 3\text{C} = 2\text{Fe} + 3\text{CO}$.

The heat-treatment of cast iron, as will be seen, offers a complicated field, and the information on the subject seems to be rather meager.

In contrast to malleablizing we have case-hardening, which is the absorption of carbon by the iron.



The Notation at Bottom of Cut Refers to Lower Lines of Figures

We see that iron will absorb the greatest amount of this element at 1,125° C. Hence, to case-harden, heat the case in presence of carbon to 1,125° and allow to stand there until carbon is absorbed to the desired depth. A bath of potassium cyanide, charcoal or burnt leather is suitable for carbonizing.

Never quench case-hardened pieces from the casting temperature, as is the usual custom. Allow pieces to cool slowly and then reheat to proper temperature and quench. Temper if desired. Also remember that the absorption of carbon takes time, and the usual blacksmithing stunt of simply letting potassium cyanide melt on a piece of steel and then quenching is a most unsatisfactory and crude method.

In regard to the effect of hammering, mechanical working, etc., this is simply refining the grain; that is, reducing the grain size to a minimum, and the same effect may be gotten by proper heat-treatment.

ALLOYS

Alloys are mixtures of two or more metals or metalloids existing in a physical state, peculiar to their composition and heat-treatment.

This explains how some alloys with exactly the same chemical analysis may have different properties, and also why alloys of the same elements in different proportions may have distinctive properties. It will be seen what a complicated problem this would present if we were to study individual alloys with the number in a single series reaching infinity, and, as in the case of iron and steel, we find it a great aid to study constituents.

The alloys of zinc and copper, that is, the brasses, may serve to illustrate what is meant by the above.

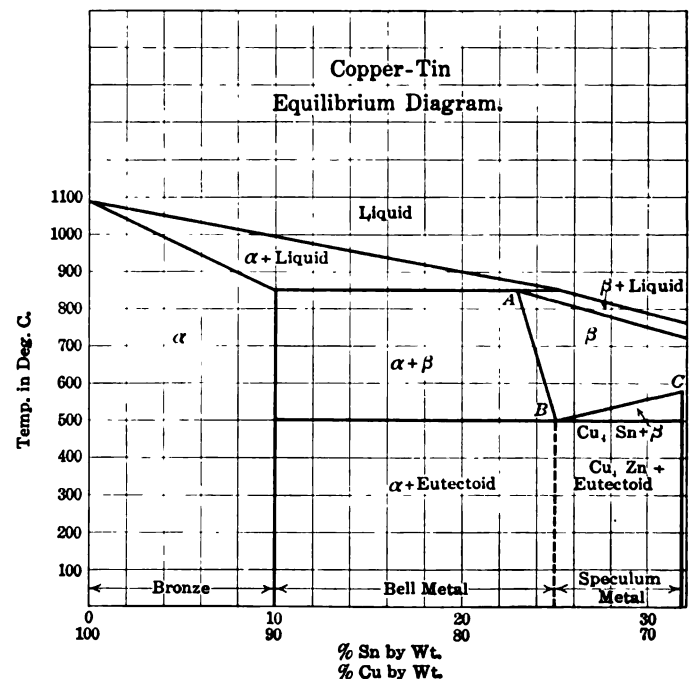
This diagram is plotted with percent. copper and percent. zinc as abscissa, and temperature in degrees centigrade as ordinates. It shows the constituents at different temperatures of alloys corresponding to any composition between 100% to 60% copper, and

0% to 60% zinc. That is, for atmospheric temperature, brasses up to 36% zinc consist of a solid solution, *alpha*; from 36% to 47% zinc, *alpha* and *beta*. *Beta* from zinc, *beta* and *gamma*, 47% to 49%, is another solid solution. *Gamma* a compound, Cu_2Zn_3 . *Alpha* is strong and has maximum elongation; *beta* is strong but lower elongation; *gamma* very brittle, low elongation. This explains why a 2-1 brass is so popular; it combining as much as possible the properties of strength and elongation. Muntz metal with 45% zinc seems to have the maximum strength, but with low elongation.

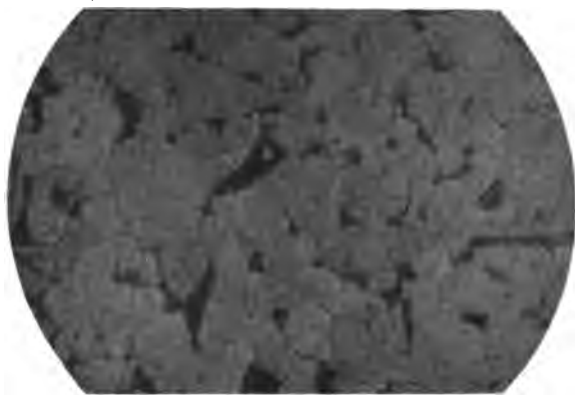
As with the steels, we see that brass may be heat-treated, but to a much less extent. That is, if a brass between 71% and 64% copper were quenched above line A-B, it would contain *alpha* and *beta*. If between 64% and 53% copper, *beta* could be retained by quenching above line C-D. Alloys between 51% and 46% copper, *beta* could be retained by quenching above line E-F.

The object in giving these diagrams is to show why the physical properties change by heat-treatment, and why we may expect rapid changes in the physical properties with different compositions. What folly it is to try and harden copper or in fact any pure metal by quenching. If metals are allotropic and some of their allotropic forms could be retained by quenching, then there might be some possibility of a change in their physical properties. This does not seem to be possible, however, without the application of some agent other than a simple heat-treatment.

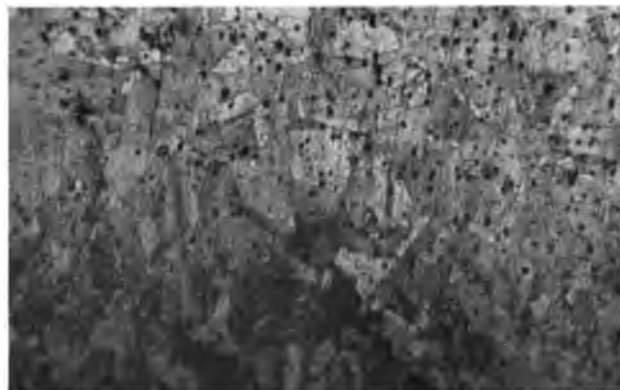
Tobin bronze, muntz metal, manganese bronze, all come in the *alpha*-plus-*beta* area, that is, the above bronzes are not bronzes at all, but simply brasses containing between 36% and 47% zinc. Tobin bronze contains in addition to copper and zinc about 1% of tin; manganese bronze contains some iron, aluminum and maybe a little manganese; the manganese



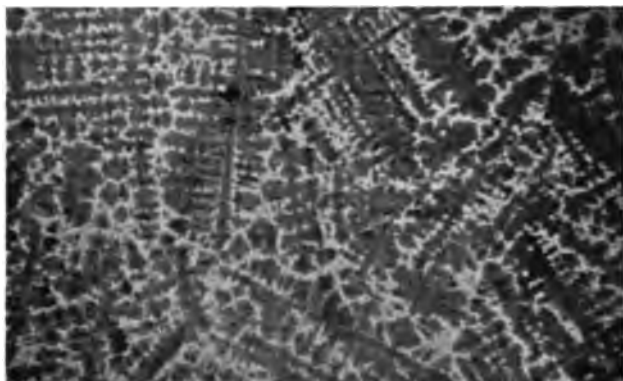
The Notation at Bottom of Cut Refers to Lower Lines of Figures



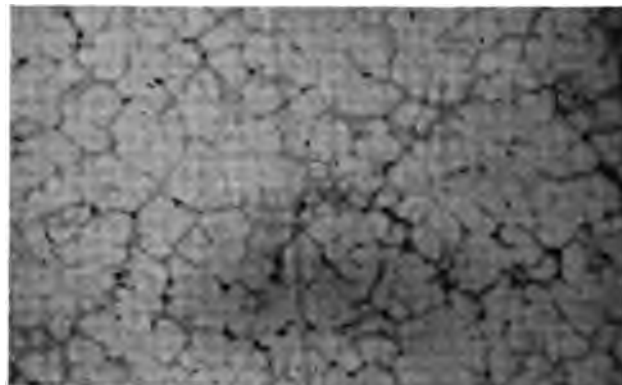
Low Carbon Steel, Slowly Cooled, Showing Ferrite (Light) and Pearlite (Dark). Magnification 260 Diameters



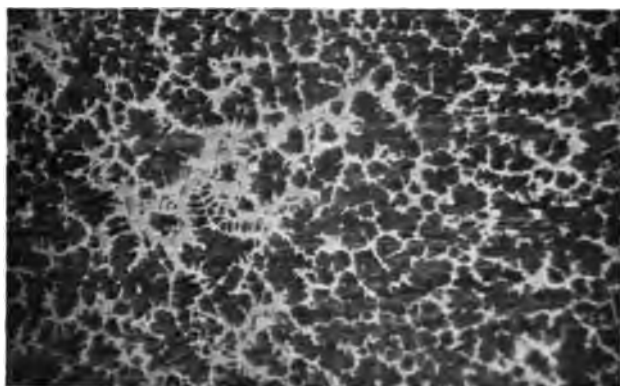
Monel Metal Annealed, Showing Crystals of the Solid Solution (Light) with Dots of Nickel Carbide (Dark)



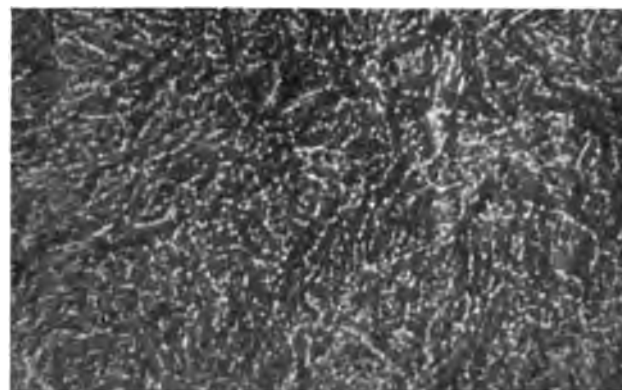
Bell Metal Composed of 90% Copper and 10% Tin. Showing Dendrites of Solid Solution α . Magnification 33 Diameters



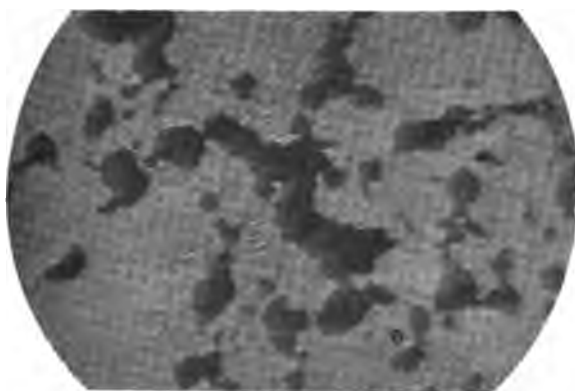
Aluminum, Approximately 30% with 70% Zinc, Showing Solid Solution (Light) with Traces (Dark) of Eutectic



Gun Metal, Slowly Cooled, Showing Solid Solution (Dark) and Eutectic (Light). Magnification 33 Diameters



Steel, Quenched, Showing Martensite. Magnification 470 Diameters



Steel, Quenched, Showing Troostite (Dark) and Martensite (Light)



Blister Steel, Showing Cementite (White), Pearlite (Light Color) and Slag (Very Dark)

is used here as a scavenger, and may or may not appear in the metal. Sometimes lead is added to make the brass more workable. In this case the lead is insoluble and under the microscope appears in globules.

The bronzes are alloys of copper and tin and the equilibrium diagram is given below.

Up to 10% tin we have simply a solid solution of tin and copper. From 10 to 25% tin *alpha* solid solution and eutectoid (a mechanical mixture of *alpha* and Cu_3Sn). From 25% to 31.8% tin, Cu_3Sn and eutectoid. On heating to 500° C. the eutectoid changes into the solid solution *beta*.

HEAT TREATMENT

Alpha.—Strong, maximum elongation.

Beta.—Probably strong, medium elongation.

Cu_3Sn .—Hard and brittle.

As will be seen from the diagram, these alloys offer a variety of heat treatment. Of course, from 0% to 10% tin no change occurs on heating and quenching. From 10% to 25% tin we may retain *alpha* and *beta* by heating above 500° C. and below line A-B, and quenching. From 23% to 31.8% tin we may retain *beta* by heating above line A-B-C, and quenching. From 25% to 31.8% we may retain Cu_3Sn and *beta* by quenching above 500° and below line C-D.

The bronzes owe their hardness to the hard constituent Cu_3Sn , and rolled bronze usually contains only about 5% tin to get rid of this hard constituent. There are several special bronzes which are now used, among them the plastic bronzes which usually contain from 5% to 10% tin and the rest copper and lead. Lead makes the alloy more easily worked and appears the same under the microscope here as in the case of the brasses. Sometimes phosphorus in small quantities is added as a scavenger or its copper compound may form a mechanical mixture with copper. This eutectic appears distributed in the metal in small patches. Sulphur may be added and also forms a eutectic or mechanical mixture and aids the bronze in holding more lead in suspension.

BEARING METALS

Bearing metals contain at least one hard constituent set in a soft ground mass. In the case of the lead tin antimony alloy, or Babbitt, this hard constituent is the compound Sb Sn which crystallizes out in cubes and the ground mass is the eutectic of Sb Sn and lead. In the case of bronze bearings, this hard

constituent is the eutectoid, and the ground mass is the solid solution *alpha*. For Parsons white brass, the hard constituent is zinc, and the ground mass composed of two eutectics; one of tin and zinc and the other of zinc, tin and copper. It is obvious we would be able to meet this demand, that is, a hard constituent set in a soft-ground mass by several different combinations of metals, and this is the reason we have so many alloys which are suitable for bearings. It will be noticed in the case of a bronze bearing that heating above 500° and quenching will destroy this metal for bearing purposes. In selecting a bearing metal it must be borne in mind that the metal must have sufficient compressive strength to withstand the load. And this is why bronze is preferable for heavy work. Sometimes copper is substituted for the lead in the Babbitt, and in this case introduces a new compound, probably CuSn , which like SbSn is very hard.

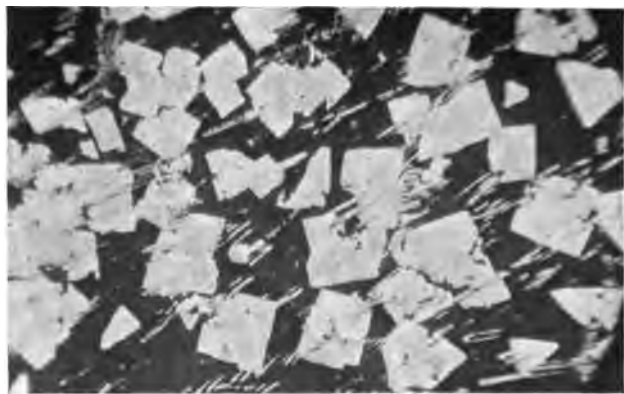
CORROSION

Corrosion is now supposed to be wholly electrolytic in character, that is, when two metals are immersed in a liquid and the circuit closed, current will tend to flow from the most electro-positive metal to the electro-negative metal, which results in the passing of the plus metal into solution and its final deposition on the minus metal. As metals are usually not pure, and the impurities are more or less segregated, local circuits may be set up between different parts of the same piece. Therefore do not use different metals in contact if their junction is to be under water or where moisture can collect. This is often done, that is, using a bronze propeller and a steel shaft and a steel or an iron rudder post and a brass blade, or a circulating pump with brass or white metal blades and an aluminum casing. In general use a metal with but one constituent, that is, a metal in which the components are in solid solution. Monell metal ought to be ideal, as far as corrosion of itself is concerned. Muntz metal, tobin bronze and manganese bronze consist of two constituents, but still seems to be good so far as corrosion goes. This may be accounted for by the rapid reversal of poles and the metal lost in this case would be the metal which passes into solution and is deposited on some other member or simply stays in solution without deposition. This is again a complicated problem, and we can look for large strides in this direction, that is, in the corrosion of metals themselves, but nothing can be done when two unlike metals are in contact, or in such a way as to form a couple, except to coat them with some protective material. The only thing to do is to keep them out of contact and away from electrolytic influences.

The aim of the article has been to present as plainly as possible a subject which in its nature is complex, and if the reader has learned as much as the writer has in getting the article up, the former as well as the latter should be entirely satisfied.

The micro-photographs were taken by Dr. William Campbell of the Columbia School of Mines, New York City, and are reproduced in order to give the reader an understanding of the various terms used.

The iron-carbon diagram is known as the Roberts Austin-Roozeboom diagram. The copper-zinc as the Roberts Austin-Shepperd, and the copper-tin diagram is known as the composite Heycock-Neville diagram.



Bearing Metal Composed of 20% Antimony, 75% Tin, and 5% Copper. Showing Crystals of SbSn and Needles of CuSn and Eutectic (Dark). Magnification 30 Diameters

ENGINE DESIGN SUGGESTIONS

Peter Jenness

AN ever interesting and much disputed question, is that of valve timing.

There are a few general facts to be kept in mind when laying out the valve actuating cams for a four-stroke gas engine. The speed of revolution, which is more or less constant in a marine engine. The area of valve ports in relation to piston area. And the piping to the cylinder or cylinders.

In regard to the revolutions per minute the actual piston speed does not seem to be so important in setting the valves, but of course is one of the main points in designing them; that is, area of port, lift and so forth.

For an engine with generous ports, to run at say 300 r.p.m., the overlap of the intake valve closing (that is, the number of degrees it should be kept open after passing the lower center and when the piston is on the compression stroke) will be much less than though the revolutions per minute were one thousand.

In a lightly constructed aeroplane engine, designed to develop its greatest power, at very high speed, the inlet valve, especially, will be kept open much longer than it would on a heavy-duty engine, developing its maximum power at low speed.

This overlap is to take care of the inertia of the gases and should be increased as the velocity of the ingoing gas increases. The ideal way would be to have a governor on the intake valve cam-shaft. But there are mechanical difficulties that interfere in putting this into practice. Such as the varying power necessary to drive the cam-shaft at an even speed. Due to one roller on the way up, retarding the motion, and another on the down side tending to drive the cam-shaft in a reverse direction. In practice, a very good compromise has been achieved even for engines with a wide range of speed.

The intake piping to the cylinders also has a very strong bearing on the best closing time for the inlet valve. In a short free pipe the inertia will be less than in a long pipe, and the compression pressure will equal the velocity head of the ingoing gases earlier. When these two pressures become equal the inlet valve should close. In the relation of valve port to piston area, it follows that the larger the port the less the overlap need be, the speed being constant. This is a very broad statement but is true in a general way. With many engines having stingy valve ports, the power has been augmented by increasing the exhaust valve lead and retarding the inlet closing, but more as regards the exhaust valve.

Some very convenient figures in laying out valves are 10, 20 and 40. The "10" pertains to the opening

of the inlet valve at 10° past the top center; "20" to closing the inlet valve 20° after the lower center, and "40" to opening the exhaust 40° before the lower center. The exhaust will be made to close 3° to 5° ahead of the intake valve opening.

These are mean figures and apply more to 1,000 r.p.m. than 300 r.p.m. Reduce them for 300 r.p.m., especially the intake overlap. And for 2,000 r.p.m. (other things being equal) increase the exhaust lead to 45° or more, ahead of the lower center, and the intake valve closing to 30° or even 40° past the lower center. Always keeping in mind that the correct time to close the inlet valve is when the velocity head of the ingoing gases equals the compression pressure as the piston goes up. After that, part of the charge in the cylinder will be repulsed if the valve is still kept open. This may hurt the power at low speeds and waste fuel, as part of the charge will be shot back through the intake into the outdoors. But probably could be obviated to a great extent, as far as the fuel efficiency is concerned, by a properly designed receptacle at the air intake, such as a cylinder or box with cone-shaped openings having a greater efficiency for the ingoing air than for the gases that are backed out of the cylinder at low speeds. This should help to fill the next cylinder on its intake stroke with a more perfect gas, as the air that was rejected will have had more time to vaporize the gasoline that has been carried along with it.

The intake manifold is really part of the carbureter. It is there that the liquid hydrocarbon is broken up or atomized, and partly or completely reduced to a gas. The shape and proportions of the manifold are very important, and the results to be sought are the fewest curves and corners, as they tend to cause condensation and wire drawing. Dead sections should also be guarded against. (By "dead sections" is meant any portions of the inlet piping in which the flow of gas stops at any time out of synchronism with the motion of the pistons. As, in the "Y"-shaped intake manifold on many two and four-cylinder engines. Only one side of the upper part of the manifold is working at one time, giving the liquid particles on the walls of the other side a chance to concentrate and condense.)

Would it not be an improvement to connect the branches of the "Y" at the top by a pipe and equalize the flow?

The result is accomplished in the very little used, endless or circular-shaped manifold, having leads on its circumference to the carbureter and the various cylinders.

Although the flow is reversed in the sections between the cylinder inlet connections, there are never any portions that become inactive.

As regards size. In this type of manifold, the area is one-half both sides feeding any one cylinder. The surface is greater for the same total area; helping evaporation. And the tendency towards condensation, much less.

Again the size; why should it be larger than the greatest area of the intake to the carbureter?

Then the dead sections or in the part where reversal of motion takes place, the greater the area, the greater the weight of gas that has to be put in motion by atmospheric pressure to help to fill up the cylinder or tend to take the place of the space where the piston was before it started down on the intake stroke. The smaller the intake manifold can be made and not cause undue wire drawing, over and above what takes place at the carbureter intake, the greater will be the velocity of the gas; the pressure due to velocity lower; the boiling temperature of the liquid lowered; helping evaporation.

Where the carbureter is connected to the manifold there should be a certain length of pipe of suitable diameter between the throttle valve and the branching of the manifold. Especially with the butterfly type of throttle and if the air turns any corners or curves towards the throttle.

In some tests, of recent date, it was found, with a carbureter that curved towards the throttle valve, which was of the butterfly type, that with throttle set so as to deflect the gases in the opposite direction from the curve of the carbureter, all cylinders were fed evenly, but as the throttle was opened and came towards a vertical position, the curve in the carbureter sent the gases to one branch only of the manifold and the cylinders fed by the other branch became practically dead. The manifold was the "Y" type. The carbureter was then turned so that the throttle and curve of the carbureter were at right angles to the manifold, and all cylinders were fed evenly at all throttle openings.

It was then attached to the engine as at first, but with a length of straight pipe between the throttle and the branching of the manifold, and all cylinders were again fed evenly. This pipe was reduced in length by cutting off small sections at a time until the cylinders began firing unevenly. With a length equal to two diameters, slightly larger than the opening of the carbureter to the air, it was found long enough to straighten out the gas and send it evenly to both sides of the manifold. The engine was a four-cylinder one.

As to the exhaust manifold. There is little to say, if it is big enough. Have it as free as possible from curves and the direction of the leads from the exhaust valves so that the velocity head of the outgoing gases does not impinge against the other exhaust valves, as the springs may become weak and the exhaust valves of one cylinder become an inlet for the spent gases of another.

In the marine engines of to-day many of the exhaust manifolds are effectively water-jacketed, which helps to reduce the exhaust to atmospheric pressure.

When this is actually accomplished, the products of combustion have a smaller volume than the charge, and the result is a partial scavenging process.

The exhaust under water, also, must help if placed in the right direction and to the best advantage to get the benefit of the velocity of the boat. The pressure alongside becoming less as the speed increases on the theory of velocity and pressure, and with the high-speed boats, there is small doubt the pressure at the exhaust opening becomes lower than atmospheric. For example, take a boat going 30 miles an hour. The equation of pressure and velocity is; $v = \sqrt{2gh}$. Applying this to the present case, and reducing it, we get a pressure of a trifle over 13 lb, which is close to 1 6/10 lb below the normal of 14 7/10 (nearly) atmospheric pressure at sea level.

This is very theoretical, and in practice the figures will not be absolutely true, as there are many coefficients to be applied. But it illustrates the possibilities, and this old saying should be kept in mind, that "if theory does not fit practice, it is because the correct theory has not been applied."

The carbureter, as we have seen, is very closely allied to the manifold. It is to-day a measurer or proportioner of air and liquid hydrocarbon. Some break up the liquid before it leaves the carbureter better than others, but probably the manifold deserves the name of "carbureter" more than the device itself, where the liquid first meets the air, due to the depression of the air on its way to catch up with the piston; the gasoline being forced into the mixing chamber by the pressure of the atmosphere.

If it were not for the difference in the inertia of gasoline and air, it works out mathematically, friction, viscosity and so forth, being left out of the problem, that some of the original types of float-feed carbureters would give perfect proportions of liquid and air for all variations of engine speed and throttle opening.

Unfortunately all the formula and laws are not known, but pretty good results have been accomplished in practice.

The variations of throttle opening have much more influence on the proportions of the mixture than the range of engine speed. For instance, an engine with a range of speed from 200 r.p.m. to 2,000; the ratio is 1 to 10, whereas the range of throttle opening, with a good carbureter, is, at least, 1 to 150.

The gravity of gasoline varies greatly with the temperature; also its volume and latent heat of evaporation; that is, the quantity of heat that has to be added to it, without raising its temperature, to evaporate it.

The commercial product of to-day, testing 63° Beaumé at 60° Fahrenheit, will send the hydrometer up to 58° Beaumé at 22° F., and down to 79° B. at 180° F. At 120° F. the gravity is 70° B., and very slight bubbles are noticed rising from the bottom of the test tube. Below this temperature there is no indication of forced evaporation, and it would seem safe to heat the gasoline to from 100° to 110° F. without hurting its qualities, thus lowering the latent heat of evaporation and increasing volatility.

This has been tried, as against heating the ingoing air and the mixing chamber, with excellent result. A jacketed pipe was placed between the float chamber and the nozzle, through which the gasoline had to flow, hot exhaust gases from the manifold were led to the jacket (probably water would have been bet-

ter). The trial was made on an automobile. The atmospheric temperature was 8 to 10° above zero F., and the ingoing air was not heated. (This is going to be tried again shortly, with a water-jacketed float chamber.)

The volume of gasolene varies also with the temperature, about .048% per degree Fahrenheit, and this in combination with the gravity accounts partly for the hard starting in cold weather. Ignition joins in here too, but, later on, for that question.

The difference between hot and cold are not so apparent after starting. The gasolene is heavier, volume less, latent heat of evaporation increased. The float displaces less liquid, the level in the nozzle is lower. The lifting power varies as the square of air velocity passing the nozzle. Being very little at low speeds, but increasing rapidly as the velocity of air increases, accounting in a general way for cold weather troubles, that is, hard starting, irregularities or missing fire and lack of throttling qualities.

As to loss of power with colder air, the above combined with the increase of oxygen in the heavier air, the volume varying as it does (other things being equal) as the absolute temperature. The mixture should be made richer as the thermometer goes down; and lighter as the barometer goes down.

The barometer no doubt effects the resistance between the electrodes of a spark plug, and the contacts of the make-and-break mechanism, but probably the temperature does more so. Cold dry air has a greater resistance for electricity than a warm damp atmosphere, and the voltage should be increased in cold weather.

There are, for ignition purposes; magnetos, dynamos, igniters, primary and secondary batteries, also the hot tube, catalytic method, Diesel spontaneous (?) ignition, and many others.

The predominating systems are the magneto, igni-

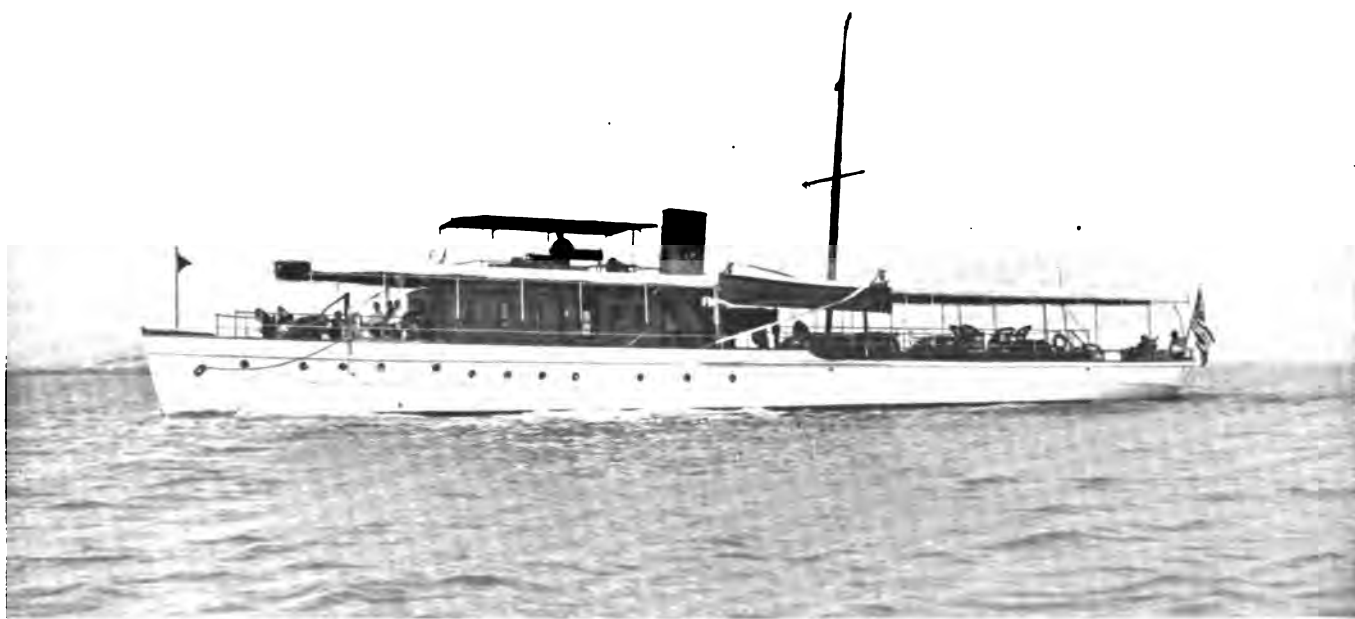
ter and secondary cells, and possibly primary batteries. The latter will give very good service if the covers are treated with melted paraffine, and better still, add separators of wood between the cells, and a case enclosing them made electrically leak-proof by paraffine. When they are played out, turn down upside down as the electrolyte has probably settled to the bottom of the cell, thus giving it a chance to get at the carbon and zinc again. They will most likely take you home this way, and perhaps further. This advice does not conform with the title, but may help some one that has not tried it.

The Diesel system, with its tremendously high compression, and ignition due entirely to adiabatic compression, is coming to the front as an auxiliary power for large sailing vessels.

The magneto is the chief source of ignition power to-day. Its weak point is that the spark will not have the same intensity at different speeds and points of advance or retard. It might be compared to an elastic band. If the band is cut when pulled out to its fullest extent, the rebound of the ends will be greater than if it were cut at any other tension. This is true of the magneto except in the cases of a few makes, which always break the circuit at the most advantageous point, by an ingenious mechanical device, and one that gives the same intensity of spark at all speeds of revolution, whether advanced or retarded.

The best point in the cycle to ignite the charge, depends on the intensity of the spark to propagate the flame through the cylinder; the speed of revolution; the compression pressure; the chemical composition of the mixture, and other variables.

This is why the point of ignition is left to the discretion of the operator in most cases. He finds it by feeling for it.



Jane, 110 Ft. O. A., Twin-Screw, Four-Cylinder 11x12 Craig Engines. Designed by A. Cary Smith & Ferris and Built by Gas Engine & Power Co. and Charles L. Seabury Co., Cons., for Mr. R. Waverly Smith, of New York



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 1 Hudson St., N. Y., U. S. A.



A NOVEL ADVERTISEMENT

The 16-foot family type launch equipped with 4½-h.p. 1912 Eagle engine presented to the racing committee of the Inter-Lake Yachting Association by The Motor Boat and Supply Company of Cleveland, Ohio, and The Eagle Company of Newark, N. J., is attracting considerable interest on the Great Lakes, not so much from the gift in itself, which is a very valuable outfit worth in the neighborhood of three hundred dollars, but from the manner in which the gift is made.

Toward the end of the regatta week the prize boat will be run out into the lake about two miles from the starting line, then the engine will be started, the steering wheel will be lashed and all the crew will leave the boat. It will be left without any one aboard running at full speed. The boats which will contest in the race will be handicapped according to their performance in the different races on the previous days, and they will be started on these handicaps. The boat which first overtakes and captures the prize will be the owner, and there are no other restrictions on taking possession of the same.

The following letter was recently received by The Eagle Company offering a suggestion as to how the race could be conducted:

THE EAGLE COMPANY.

"Gentlemen: I see that you are going to give away a boat and engine during the races in July to be held at Put-in-Bay.

"Now I want just about such a boat, and if you will fix it so I can get it, I will pay you \$100 in cash for same. Of course, I know that \$100 is a small price for the boat but it is all I have and then you will be just that much ahead. Now, if you will do this, I can help you sell lots of engines up here. Maybe you don't see how you can fix it so I can get the boat, but I have several schemes:

"One is you can fix the rudder so that it will steer off to one side and I will be there on a friend's boat and get it. I don't belong to no boat club but they are mostly a lot of dudes anyhow and wouldn't have no use for the boat and anyway by steering the boat off to one side to me you are going to save a lot of accidents, as you know the way you have the race fixed that two or three hundred boats are all going to get to your prize about the same time, and as your boat ought to be running about ten miles an hour and some of the other boats will be running twenty which I suppose will have to start later than the slow boats in the race, there is going to be some accidents, and maybe the prize will be cut in two which will be too bad. Now please won't you fix this

up with me and I won't never tell and will surely pay you the money right away, and besides when you think it over you must agree by giving me the boat by how I suggest that I am a benefactor to the race and maybe you should only take \$50, and I tell you another way we can fix it, maybe better than the first.

"I see by the magazines that the prize boat will have a 2-mile start. You can put a plug in the bottom of the boat about one inch big, and when you get out of boat after starting it you can pull this plug out and she will sink. I think in about ten minutes before anyone can catch her, and so you will save many lives maybe and it will do the boat not much harm, so hoping you will excuse this long letter and fix it up for me this last way I think best.

"Very truly yours,

"P. S.—I forgot to tie a float or small bottle to the boat with a long string before she sank, so no more now and don't forget."



DESIGNING COMPETITION

I READ with much interest Mr. Scott's criticisms of the cruiser designs, and while it is true that the competition did not bring out the perfect cruiser, some of his objections are open to discussion.

The broad statement that "any V-stern cruiser steers badly in a following sea" is not in accord with experience, but the error may be understood when we continue and read the critic's boats all had their weights concentrated amidships; no wonder they were uneasy and hard to steer!

Unballasted ends are readily tossed about by the waves and make an uneasy boat, but distributed weights give a steady boat. The owner of a boat with end tanks knows that she becomes more uneasy as fuel and water are consumed and is particular to fill up before starting on a rough trip. Additional tanks amidships would tend to decrease rolling if well out to the sides, but the advantage gained is not worth the extra weight or the sacrifice of valuable locker space in a small cruiser.

There are a number of good reasons for carrying the fuel tank in the forepeak. Gravity feed will never fail in the roughest seas. The compartment is obtained by building only one bulkhead, and that where it will be the strongest, at the narrowest part of the vessel. The tank will occupy the least space for a given capacity if built as it should be, of heavy copper shaped to the compartment, and finally, the fuel is at the greatest possible distance from the galley located preferably at the after end of the cabin.

A weight of 800 lb anchor and chain may bring the total up to 1,000 lb. Any cruiser fit to go to sea will carry such a load, tossing it up and down in rough weather, without the slightest strain.

The change in trim due to consumption of fuel is another imaginary evil provided the tanks are correctly placed, fuel forward and water aft. In a small cruiser water is used mostly when lying in harbors, and its consumption will not equal that of fuel unless long stays are made in port. The prudent yachtsman starts out with full tanks and not until his fuel tank is appreciably lightened will he reach the uneasy condition that is normal in a boat with unballasted ends.

But with water forward and fuel aft there is a possible bad situation, for a light stern and loaded bow would be a poor proposition in a rough sea. Furthermore, when the boat takes the uphill position on a long wave the fuel feed might fail and the engine stall under its maximum load. Forced feed is a dangerous makeshift to remedy the wrong location of the fuel tank.

Tanks fore and aft do not make "the ends dig in the seas and stay there," but on the contrary steady the boat considerably. If a boat acts in the way described the fault is with the model, not the tanks. This flat and ungentelemanly contradiction is based on experience gained knocking about during fifteen Summers from New York to Penobscot Bay in boats with fuel tanks forward.

STANTON M. SMITH.

ALOUETTE

ALOUETTE is one of the many very fine yachts sailing under the flag of the Royal Queensland Y. C. on the waters of Moreton Bay; 35 feet over all, 28 feet water line, 10 feet breadth of beam and 4 feet draught. She is fitted with a 14-h.p. Clifton engine, which has given great satisfaction in every respect, being well up to the power and simple to work. When under sail she carries 600 feet of canvas and makes fair headway.

She was designed and built by a local boat-builder, J. H. Whereat, of Bulimba, and is fitted with every convenience in the shape of lockers, w. c., lavatory, ice-chest, galley, drawers. The cabin is roomy and



Alouette, 14-H.P. Clifton Engine



Wee Pup Built from Rudder Plans

contains four berths with drawers underneath for clothes. There is also a fair sized centerboard with a leaf table on either side. An electric plant is installed, which does all the lighting throughout the yacht.

Moreton Bay is a delightful cruising bay, having good open water for those who wish to have a lively time, and in the South end of the bay there are numerous islands for those who like a quiet time.

Brisbane, Queensland.

A. POINTON.

PROA

HAVING seen illustrations of a few freaks in THE RUDDER, from time to time, I thought I would send you a photograph of my Proa to add to the collection. She is about 18 years old and still in commission.

Toronto, Ont.

G. E. MILBURN.



Proa



Hei-Lung

ON THE YANG-TSE-KIANG

THE most astonishing thing that has happened in centuries is the revolution in China and the establishment of a republic where for over five thousand years a monarchical form of government has existed. If the change is permanent and the Republic endures, the Western nations will live to regret the day they opened up the Flowery Kingdom to modern ideas and wants. China will become one of the great powers, and controlling unlimited wealth and force will sweep the white nations out of Asia and the East.

When we think of China, we think of Shanghai, Canton, Peking, or the few treaty ports. Few realize that this empire is greater in territorial extent than the United States and exceeds in population even the British Empire, and that it contains hundreds of large cities and has within its boundaries mountains, deserts, and many great rivers.

The Yang-tse-Kiang (son-of-the-Sea) rises in central Tibet and flows clean across the Republic for 3,000 miles and enters the Yellow Sea. The river is full of silt, forming bars and shallows that interfere with the free navigation. The river is navigable for about half its length, and the tide runs up to Lake Po-Yang, 450 miles from the sea. There are a number of large steamers on the river.

The pictures show a shallow-draught vessel, called Hei-Lung, belonging to the Chinese Government and employed on the Yang-tse-Kiang. She is built on the tunnel system and only draws 2 feet. Hei-Lung is 71 feet over all and 13 feet breadth. She is driven by two Fairbanks-Morse 30-h.p. Type B, kerosene engines, operating two screws. On the official trip a speed of 9.4 knots was made.

The Fairbanks-Morse Company are selling a number of these kerosene engines for use in China and other Eastern countries, and from reports received they are giving satisfactory service. The kerosene or crude oil engine is the engine of the future, especially in tropical and semi-tropical countries where it is expensive to use gasoline.



Another View of Hei-Lung

CURRENT IN THE GULF STREAM

SOME sceptics take with a considerable grain of salt any statement regarding the velocity of the current in the Gulf Stream. The following illustration shows that there was considerable current running the day the picture was taken. The photograph was taken in the Stream off Cape Hatteras when the estimated strength of the Stream was between 4 and 4½ nautical miles per hour. The buoy is located in 1,700 fathoms of water and moored by a chain 2,800 fathoms in length, and the flotation of this buoy, exclusive of its own weight, is 7 tons.



In the Gulf Stream

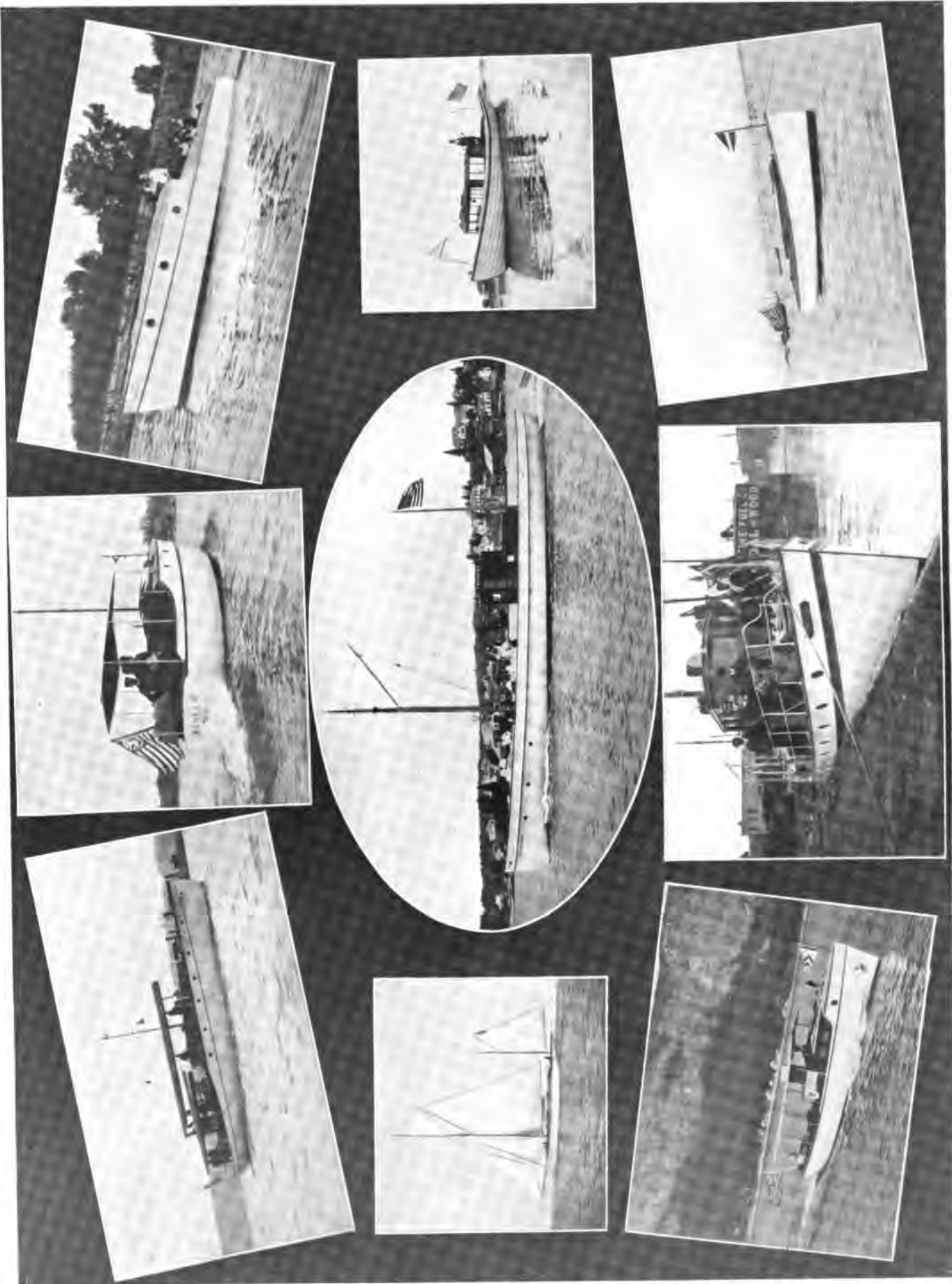
BUILT FROM RUDDER PLANS

THE following letter was received by Mr. Norman C. Skene from an enthusiast who built a Snapper from a Rudder How-To:

"I am sending you the first photograph (page 332) of my boat Ardath, built from designs of 'How to Build a 36-foot Cruising Launch Snapper,' in RUDDER. It is needless for me to tell you that it is a tremendous proposition for one man to undertake with a drug store, small farm and practice of medicine on his hands. But after four years of working what spare time I had, I have taken her out of the barn where built, put skids under her and with six horses drew her on the snow 5 miles to Huron, Ohio, where she will be launched this Spring. Just how this was done the enclosed photo will show. She is a beauty and built upon honor, and the work has indeed been a pleasure and diversion.

Berlin Heights, Ohio.

CARL TUTTLE.



Sterling Engine Equipped Boats of Many Types



Owl

SAILING DINGHY OWL

WE have very satisfactory reports from all who have built and sailed the dinghy designed by C. D. Mower, the plans and directions for building which were published in the issue of December, 1909. Commodore W. E. Virgin, of the Summerville Y. C. writes, "Our club has a nice fleet of these boats, and has had with them some fine racing." It will be seen that Owl carries the gunter rig, and the report is that these boats do better with that shaped sail than they do with a gaff-headed sail. I would much like to see the question thrashed out between two of these dinghies, as a number of my readers are interested in finding out which is the better rig.—EDITOR.

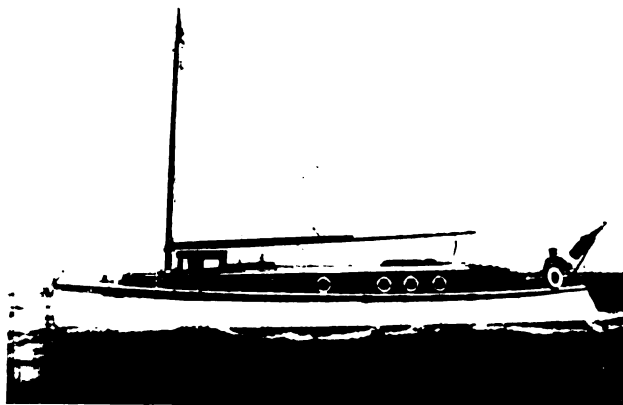
CORNFIELD LIGHT RACE

A POWER-BOAT race to Cornfield Point Light-Vessel and return will be held June 22, 1912, under the auspices of the Colonial Y. C., starting and finishing in front of the clubhouse, 140th Street and North River, presenting a combination of river and sound racing both novel and original. Race will start at 3:30 p. m.

Boats Eligible.—The race is for cruising boats of not less than 25 feet over-all length and not exceeding 45 feet over-all length, whose water-line breadth is not less than one-fifth of its water-line length; enrolled in any recognized yacht club; the term "cruising boat" to include boats built and used for cruising, having a raised fore-deck or hunting, trunk or glass cabin, containing sleeping, cooking and general living accommodations for crew.

Course.—The race will be from the Colonial Y. C. down the Hudson River, around the Battery and up the East River past Throgs Neck, Stepping Stone and Execution Lights, and thence Northeast by East sixty-four (64) miles to and around Cornfield Point Light-Vessel and return over the same course, finishing at the clubhouse, a total distance of one hundred and eighty-three (183) nautical miles.

Rating and Power.—All boats to race in one class under 1911 A. P. B. A. rules. No unrated boat to be allowed to start. Rating certified by the measurer of any recognized yacht club will be accepted by the Regatta Committee. Only motor power to be employed. Any boat carrying sailing equipment or rigging must have all canvas sealed by the Race Committee before the race starts.



Pooganah

Crew.—The crew of each boat shall consist of not less than three persons, who shall not be changed during the race except in the event of accident.

Time of Finish.—Boats must finish within thirty (30) hours after start, at which time the race will be declared finished.

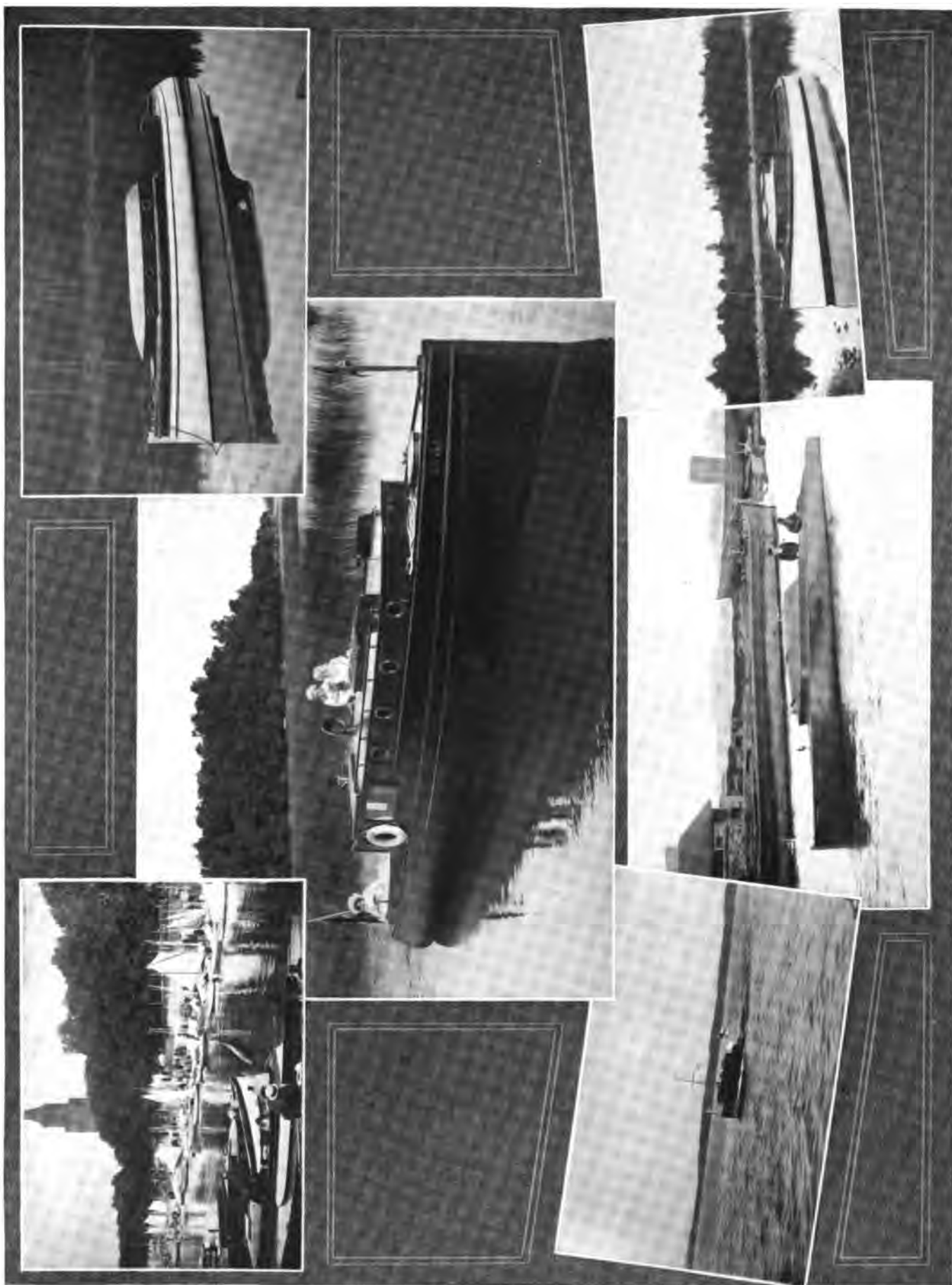
Entries.—Entries must be made in writing to the Regatta Committee of the Colonial Y. C. not later than June 20, 1912, accompanied by their ratings. Appointments may be made for measuring by application to the committee, which will be arranged for at their mutual convenience.

LAUNCH POOGANAH

WE are indebted to one of the staunchest of our readers in Australia, Mr. Alvin A. W. Taylor, of Sydney, for the picture of Rooganah, and of the Standard Challenge Cup won by her in the Ocean Race of 1911. Rooganah is 50 feet over all, 11 feet wide, and equipped with a 20-h.p. Atlas oil-burning engine, for which excellent machine Mr. Taylor is the Australian agent. He is also agent for the K-W ignition specialties.



Cup Won by Pooganah



Buffalo Engine Equipped Craft in Finnish Waters



Deck View of Four Winds

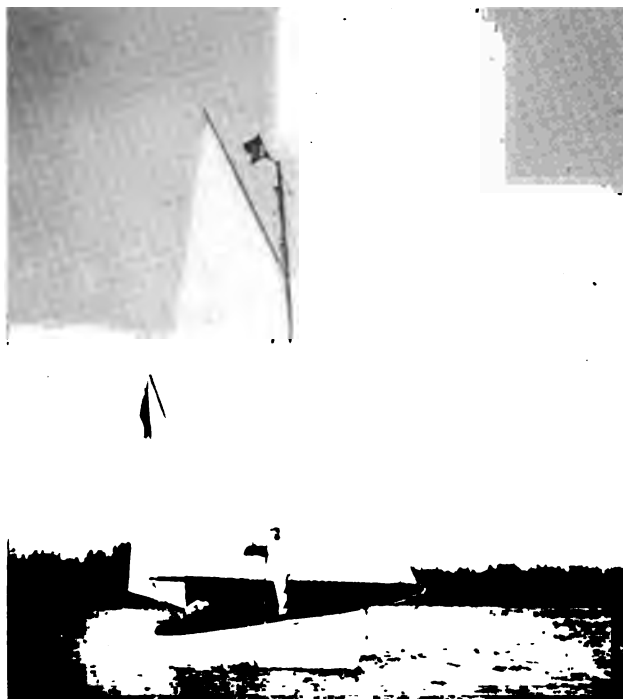
FOUR WINDS

THE publication of the Sea Bird's trip has aroused the interest of the owners of Birds and Four Winds in all parts of the world, and they are sending in photographs of their boats. These I have vainly asked for at previous times, and not very generously received. I am always interested in knowing the boats that have been built from our plans and meeting their owners by correspondence, so as to learn how the craft they have built turned out.

This Four Winds was built by Mr. George Buscombe, at Vancouver, British Columbia, and Mr. Buscombe writes that he is very much pleased with her actions, and has no fault to find with the design.

MODEL OF SEA BIRD

ENCLOSED find photos of Sea Bird which represent my conception of your glorious trip to Rome.



Four Winds, Built by Mr. George Buscombe,
Vancouver, B. C.

These photos represent a miniature model of Sea Bird on her way to Rome; scaled 3/16-inch to the foot or about 5 inches over all; hull, sails, etc., made of wood and perfectly rigged; jib and jigger reefed and mainsail tied down. The Oldman at the stick is carved from wood also.

The round part of the picture is a wooden chopping bowl, a step or ledge built on the lower part, on which the model rests and painted to represent the ocean. A flat square surface of wood is added, to which the frame is fastened.

This is not the work of a "Warren Sheppard," but one who handles a mortar and pestle for a living and whose leisure moments are devoted to the hobby of shaping and making models, and who is encouraged and stimulated by the contents of your most entertaining publication.

Through the kindness and generosity of the firm of L. E. Waterman & Co., I am enabled to place my picture on exhibition in one of their show windows—Broadway and Cortlandt Street—along with a copy of the chart and a picture of the Oldman. I tried for a picture of the "boys," but failed—so you must go it alone.

Brooklyn, N. Y.

WM. E. LONG.



A BUILDER OF RUDDER BOATS

HAVE read with deep interest your account of trip in Sea Bird across the pond as far as we have got (second chapter), and am wishing for more. Everything drops when THE RUDDER comes in.

We have a lake here two miles long by about one wide, but boating is not what it ought to be.

Have built a Lark but, foolish-like, reduced length, consequently she was inclined to dive. She's now rotten. Then built a Swampscot Dory and won first annual sailing race and gold medal. Next built a Swallow (The Gowan) and won second annual race and silver cup; but it was a mistake, as it's knocked all the competitors and they won't build to compete.

As The Gowan is wrecked, I'm endeavoring to get a 14-foot class of flatties going, and as a trophy intend to give a year's RUDDER, and hope by so doing others will get the craving.

Built an 18-foot launch from general information in THE RUDDER and had much pleasure from it.

Levin, New Zealand.

W. B. MACINTOSH.



Evinrude Detachable Engine in Holland

DETACHABLE ENGINES

FOR years there has been a cry for a practicable detachable engine. Many a man has a good rowing boat or fast sailing boat that he does not want to permanently disable by putting in fixed power, but would like now and again to save himself labor or waiting. This is the field for a detachable engine, and it is an extremely large one, especially in foreign lands. The picture shows a small dinghy fitted with an Evinrude engine on the River Amstell at Amsterdam, Holland, and a fleet of boats equipped with the same device on Lake Pewaukee, Wisconsin. Through their advertising in this magazine the Evinrude Company have sold hundreds of these detachable engines, and we are greatly pleased to chronicle that we have never received a single complaint from one of the buyers, a certain sign that the engine does its work and does it well.

DESIGNING CONTEST

I WAS more than interested in our Western friend's criticism of the Competition designs. It shows he is a live one. I have always had a pretty good opinion of our Western brothers in the power-boat game, and it certainly has not diminished any, as I do admire a man who isn't afraid to speak right out in meeting in regard to what he thinks.



Evinrude Equipped Boats on Lake Pewaukee, Wis

Now in regard to the criticism of design No. 1, you sure got one over on me concerning the towing bitt being mixed up with the quadrant. I saw that myself after I had sent the design in and wondered if any one would notice it. I was pushed at the last for time, and in tracing I forgot to relocate it further forward and also show it on the deck plan and in-board profile. I did not consider a spare tiller necessary, owing to the accessibility of the quadrant and steering gear leads.

Regarding the boat steering badly in a following sea due to the rake of the stern and limited rudder area, I can say from my own personal experience on a boat of similar profile that I wouldn't ask for one to handle any better than she did. Of course any boat is bound to yaw around more or less under those conditions. The area of the rudder as compared to the lateral plan is about according to the rules, as far as such rules go, and I would not change it unless it was proven too small by actual trial.

About our "Summer resort," the galley. If you had only looked at it as carefully as you did the stern,



This Lady Handles Her Own Boat. The Engine is a 3½-H.P. Ferro

you would have found an 8-inch vent directly over the middle of the space with a generous cowl extending well above the deck. This was to give a supply of air below and allow it to exhaust through the skylight and hinged window. This, I think would give good ventilation.

As I am not built on large lines myself maybe I overlooked the difficulties of a larger person handling the drawers in the stateroom; but as for myself I am sure I could open and close them without much trouble, there being a space of 12 inches at one end of the drawer when the other end is hard up against the berth opposite.

I'll admit I would rather have my fuel tanks in the middle of the boat, but being limited to 40 feet, I did not consider it good policy to cramp the engine room any more than I did by trying to crowd in the tanks. A small auxiliary tank should be used in the engine room. Any number of boats have their tanks in the stern and give satisfactory service.

J. A. POTTER.

S. Y. CRISTINA

At the yard of the Pusey & Jones Company, at Wilmington, Del., there is approaching completion a handsome craft that will be a splendid addition to the fleet of American-built steam yachts. This vessel, which will be in commission this month, is being built for Mr. Frederick C. Fletcher, of Boston, Mass., a member of the New York, Eastern, and other yacht clubs, and who has been intimately connected with yachts and yachting for many years.

This new craft will be named Cristina, and is the second yacht owned by Mr. Fletcher bearing this name. The plans for Cristina were prepared by Messrs. Gielow & Orr, of this city, who also designed the first Cristina, and who are superintending the construction of this craft.

The yacht has a water-line length of 155 feet 10 inches, 177 feet 6 inches over-all length, with a breadth of beam of 26 feet 3 inches, and 14 feet 9 inches depth of hold. From these dimensions it will be seen that the vessel is of a powerful cruiser type. The hull of Cristina is of mild steel from 60,000 to 68,000 lb tensile strength, and practically equal to marine boiler plating, while parts of the engines are of nickel steel. The plating above the water-line is flush, below it is in and out, thus presenting a smooth surface above and the strongest possible construction below the water-line. No attempt has been made to economize in weight, for in preparing the design of this craft, the object in view has been to produce a thoroughly substantial vessel, capable of going to sea at any time.

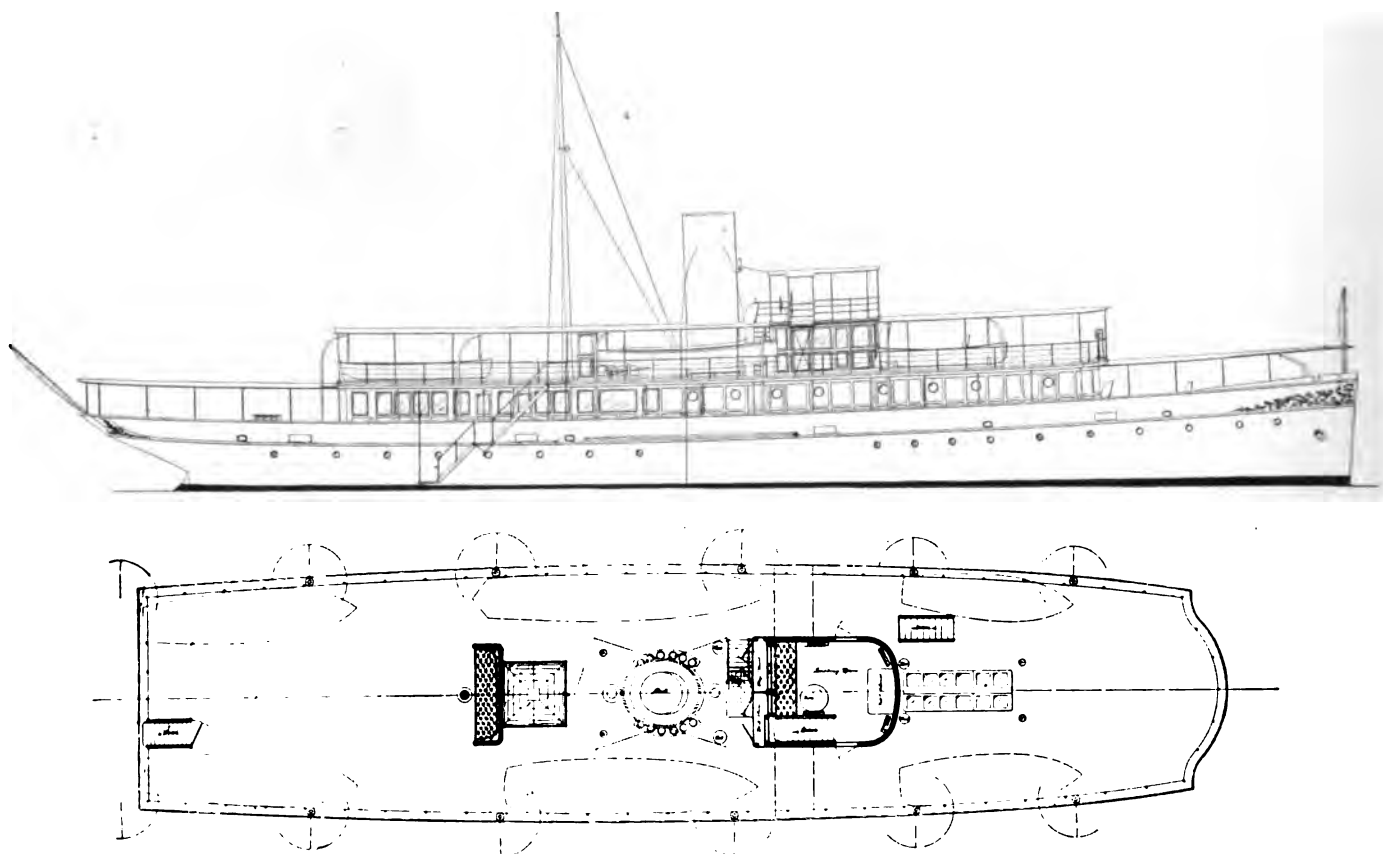
The lines of the yacht, while showing power, are very easy, extending in fair curves from stem to stern. She is a radical departure from the typical or conventional steam yacht in that she has a plumb stem. Her sheer is graceful, and the whole appearance of the hull clean-cut and artistic. The deck is flush and runs the full length of the vessel in an unbroken sweep. The bulwarks are of steel, finished with a teak rail.

While no expense has been spared to obtain the very best and highest grade of material for hull and machinery, equal care and attention have been given to the joinerwork and decorations, which will be second to none. The skylights and deck fittings will be of solid teak, finished bright; and the saloon and state-rooms will be finished in mahogany and white enamel.

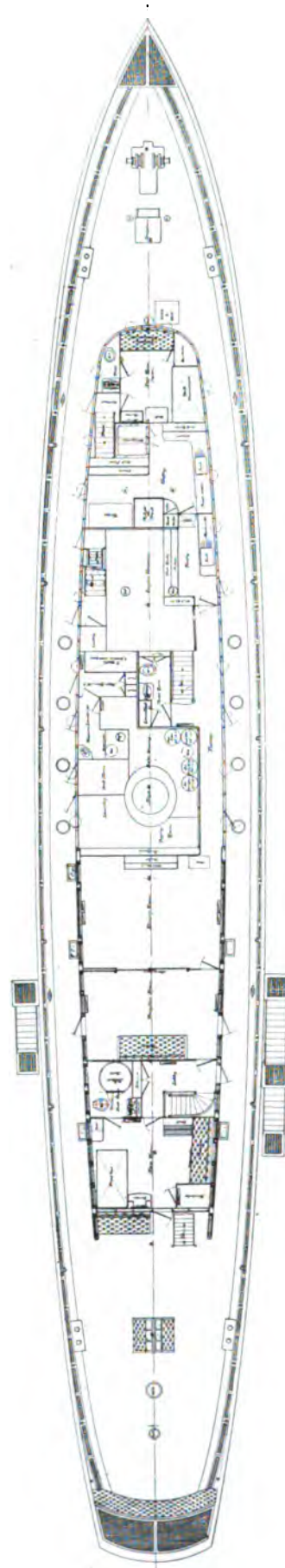
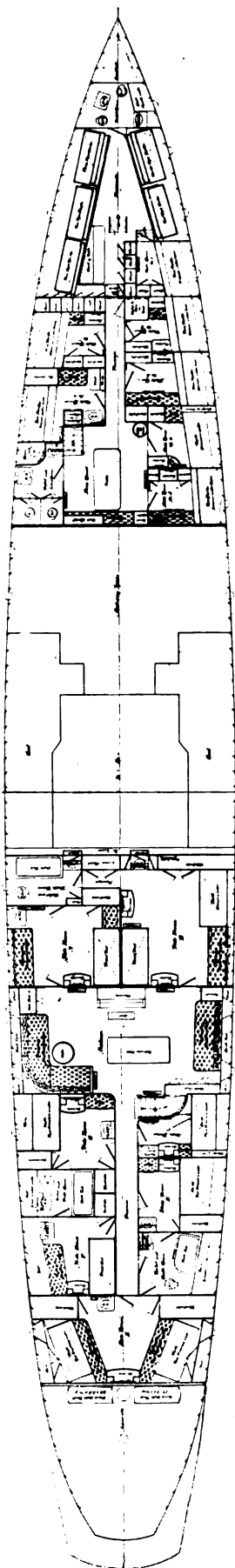
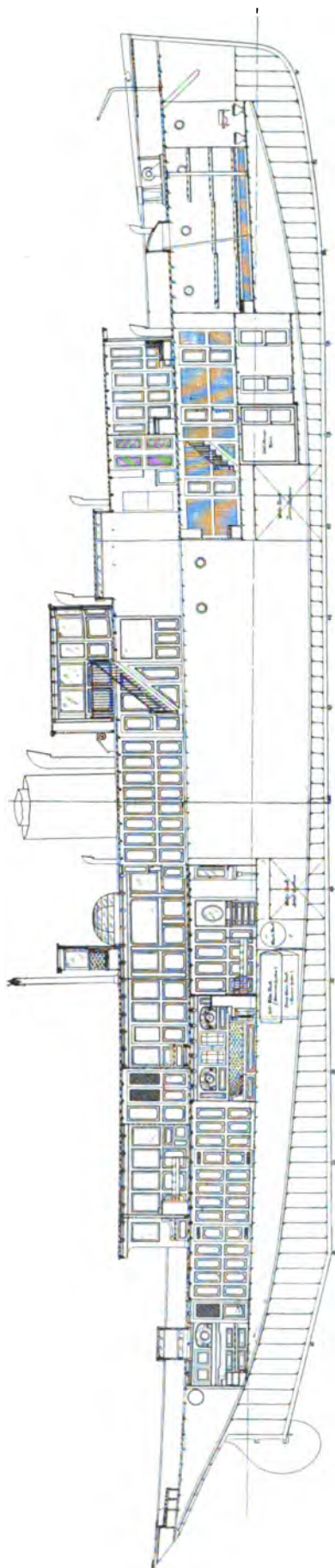
The deckhouse is of steel, 102 feet in length, 7 feet 4 inches headroom, with a shade deck extending to the side of the hull for the full length of the house. At the after end of the house there is a shelter hood with glass side panels, divan, etc., and a stairway leading to the upper deck.

In planning the accommodations, Mr. Fletcher's wishes, to have all the owner's and guests' accommodations grouped in the after part of the vessel, and the crew's accommodations forward, have been carefully carried out, resulting in a commodious arrangement that cannot be excelled for convenience and personal comforts.

The captain's stateroom is in the forward end of the deckhouse, fitted with a large berth, wardrobe,



Outboard Profile and Boat Deck Plan of S. Y. Cristina. Designed by Gielow & Orr for Mr. Frederick C. Fletcher, of Boston, Mass.



Inboard Profile and Accommodation Plans of S. Y. Cristina

divan, also a separate toilet and lavatory. Aft of this is the galley, 12 feet in length, with a mean width of 14 feet, fitted with a small refrigerator, ice-box, cooking range, dressers, sink, and dumb-waiter. Aft of the galley on the starboard side is the butler's pantry, 10 feet in length, fitted with the necessary dressers, dish-racks, lockers, sink, and steam table. Extending aft from the butler's pantry, along the starboard side, is a passage leading to the dining room, and on the inboard side between the engine and boiler housings there is a stairway leading to the smoking room on the upper deck. Inboard of this stairway is a toilet room with lavatory, toilet, linen closets, etc.

The dining room is on the main deck, immediately aft of the machinery space, 13 feet in length by 16 feet in width, with a sideboard in the forward end. In addition to the windows, there will be fitted a domed skylight 6 feet square. Aft of this is a reception room, 10 feet 6 inches long by 16 feet athwartships, which connects with the dining room by means of folding doors, so that the two apartments can be thrown into one.

On the starboard side, abaft of the reception room, is a lobby with a stairway leading to the owner's quarters below. Opposite on the port side is a large bathroom fitted with lavatory, shower bath, etc. The extreme after end of the deckhouse is fitted with a large stateroom with brass bed, wardrobe, divan, desk, etc.; a door leading into the lobby at the forward end, and another out to the main deck aft.

On the upper deck is a smoking room 12 feet 6 inches in length, and 10 feet wide in the clear, finished in Circassian walnut, with chart table in the forward end, and divan in the after end. The vessel will be steered from the bridge on top of this smoking room. Aft of the domed skylight will be a windshield with a cozy corner, divan, etc., on the after side.

The balance of the living quarters for the owner and his guests will be aft of the machinery space, occupying the full width of the vessel, and a fore-and-aft distance of 60 feet, and consisting of a main saloon 12 by 24 feet, seven staterooms, and three bathrooms. The owner's stateroom will be 12 by 15 feet, fitted with brass bed, large wardrobe, lavatory, two bureaus, divan, etc. The other staterooms, although somewhat smaller, will be finished in a similar manner. The plumbing throughout is of the very best and is of the open type. All closets are operated by the Hermes system, thus dispensing with the inconvenience and discomfort of hand pumps.

The quarters for the officers and crew are forward of the machinery space. Immediately aft of the collision bulkhead is a toilet room for the crew, 5 feet in length, and full width of the vessel, fitted with two lavatories and two toilets. Aft of this is a forecabin 20 feet in length, fitted with folding berths, transoms, lockers, and with a wardrobe for each man. The officers' quarters and messroom occupy a space of 26 feet fore and aft, extending full width of the vessel. In addition to the messroom there is a large toilet and bathroom on the port side.

The accommodations for the officers consist of seven staterooms, each with a wardrobe, bureau, mirror, transom seat, and two berths.

The yacht will be lighted by electricity, the generating sets being operated by steam turbines, and in

addition to this, there will be an Edison storage battery of double the capacity that is usually placed in a yacht of this size. Steam heat is provided throughout the craft, and a steam table is fitted in both the galley and pantry.

The water tanks are carried below the cabin floor, and running water is supplied to all the lavatories, etc., by means of air pressure supplied by electric pumps. The vessel's equipments also include an ice-making machine, refrigerating plant, which, together with the large fresh-water tanks, coal-carrying capacity, etc., will enable the craft to go offshore for a considerable period of time.

The vessel will be propelled by a pair of triple-expansion engines, capable of giving a speed of not less than 15½ knots per hour. The boilers are of the water-tube type, and will supply steam under natural draught for ordinary cruising. The fire room will be made air-tight and fitted so that when closed, forced draught can be supplied by means of a fan blower operated by a steam turbine.

ARTMAR

THE accompanying plans show the lines, construction and arrangement plan of Artmar, designed and now being built by Frederic S. Nock, East Greenwich, R. I., for Commodore C. M. Dunbar, of Providence, R. I.

The lines show a boat with a fairly full form, sharp entrance, with ample reserve buoyancy, and enough flam to be effective. The after sections, while they are of such a shape as to prevent the boat from settling to an unusual extent, are fine enough to assure her being easy in a seaway. The midship sections show a good floor, not too flat, but with ample initial stability.

The construction is rather heavy: the stem, 5 inches; keel and deadwood, sided 6 inches; the frames, 2 by 2 inches, spaced 12 inches on centers; the planking of yellow pine 1¼ inch thick. The bilge, deck and other clamps as well as the shelf are of ample proportions. The yellow pine keelson is 4 by 8 inches, and sister keelsons, 3 by 12 inches, 30 feet in length. The engine bed is set inside of the sister keelsons and securely bolted through same and to the keel. Aft of the engine is a quadruple bulkhead, the two inner strakes being laid diagonally. The deck beams are very heavy and the deck is laid 1½ inch thick and covered with canvas.

The engine room is situated amidship and on each side are the gasoline tanks. The power developed at the propeller with the engine turning at 400, 450 and 500 r.p.m. equals 60, 65 and 70-h.p. A work-bench, crew's toilet, two pipe berths, sink, lockers, etc., complete the equipment. The engine is controlled from the bridge deck, and can be started without going down to the engine room. The forepeak is arranged for the stowage of the chain, and in the space between that point and the forward trunk is the galley, with steps leading into the saloon and dining room, which is situated under the forward trunk. At the forward end of the saloon is a large china cupboard, a desk and sideboard, and on each side there is a Pullman berth. On the starboard side there is a lavatory and locker; on the port side, a linen locker. A short seat extends across the after bulkheads and around the

side for a distance of about 3 feet. A large extension table is fitted in the center and, instead of seats, chairs will be used. The finish is all mahogany, finished light. This light, airy dining saloon is getting to be quite the proper thing in these small power craft.

Aft of the engine room is situated the sleeping quarters: the owner's stateroom the full width of the boat, with a double berth, divan, bureau, lockers, and wardrobe; on the starboard side the toilet room; and on the port side is a single stateroom with berth, bureau, wardrobe, seat, etc., for the owner's young daughter. Aft of this stateroom is a large locker for storage. On the starboard side of the companionway is a berth and transom. The finish of these quarters is white enamel and mahogany trim.

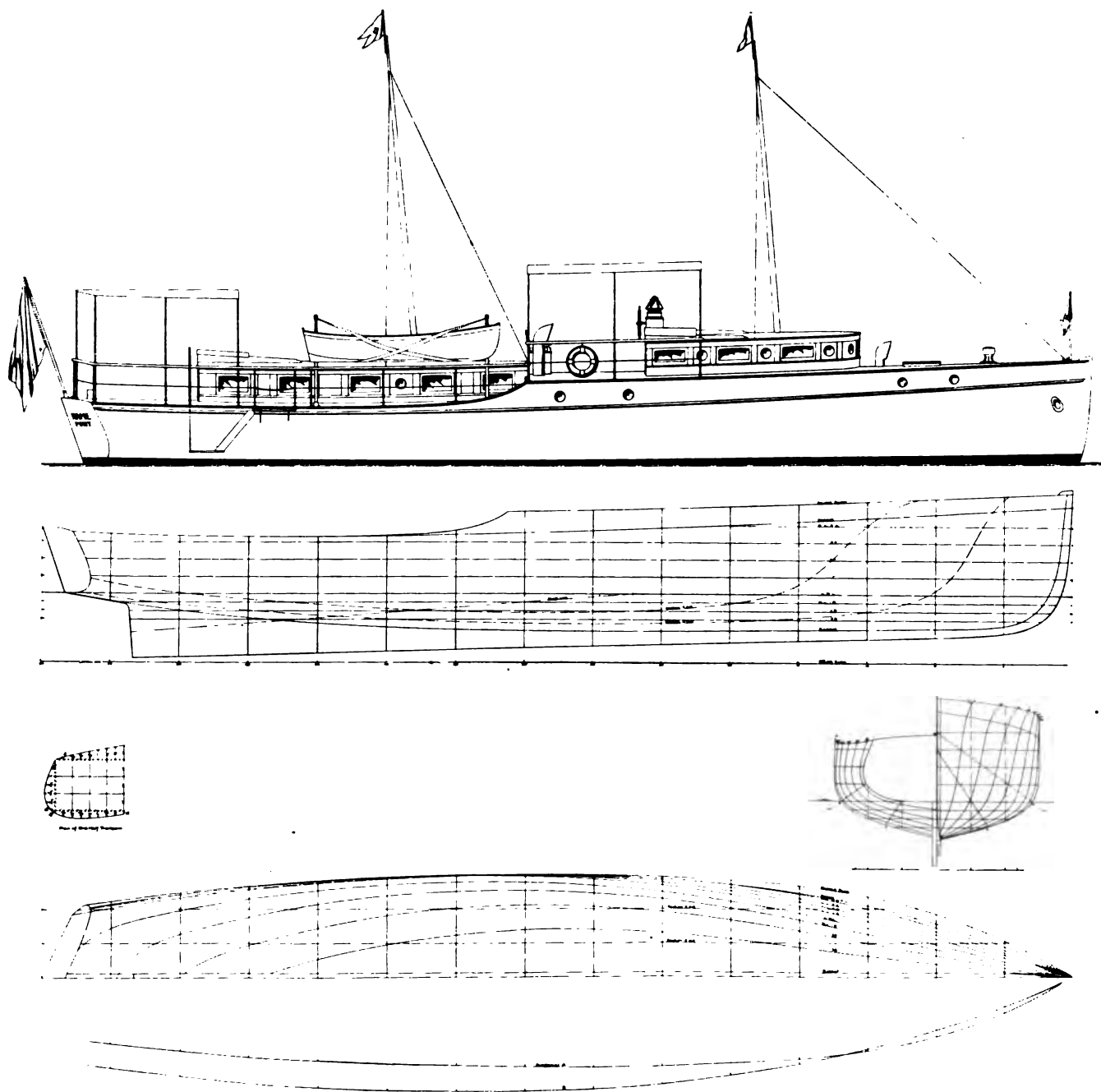
Two of the water tanks are situated under the after deck and two under the saloon floor. There is also an auxiliary gas tank under the saloon floor to be used in case of emergency.

The exterior finish is mahogany.

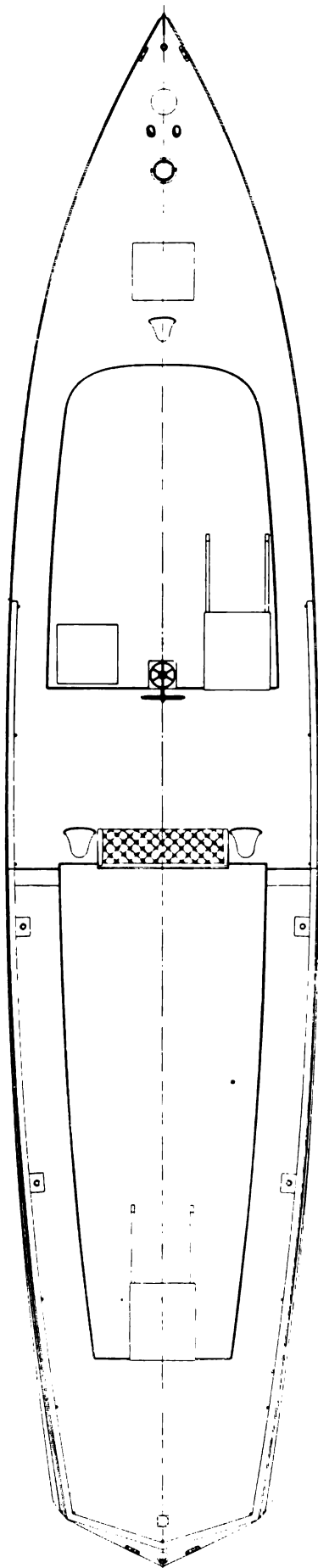
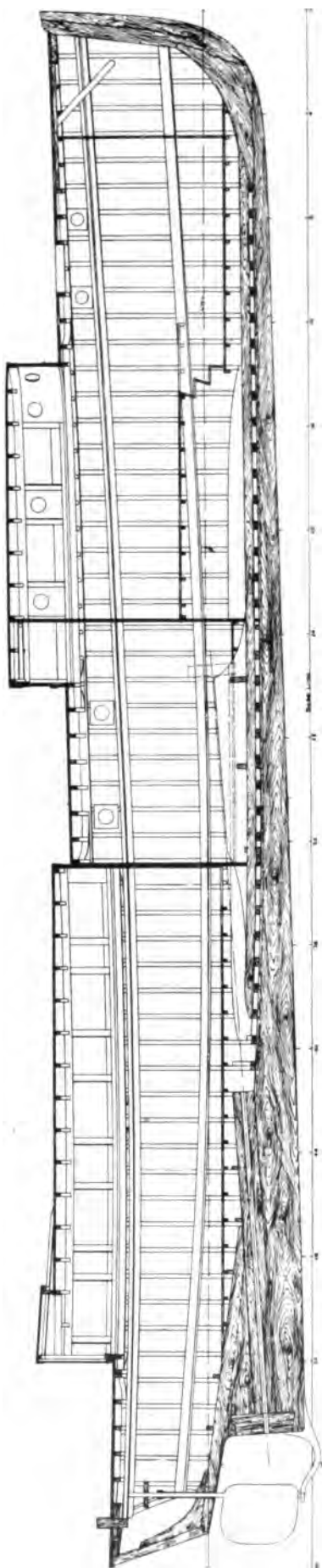
She will carry two small spars and sails which are of sufficient area to handle her in case of engine trouble. Two tenders, a rowing dinghy, and a small sailing dinghy will be carried. For a lighting system she will have electricity and acetylene.

General dimensions are as follows:

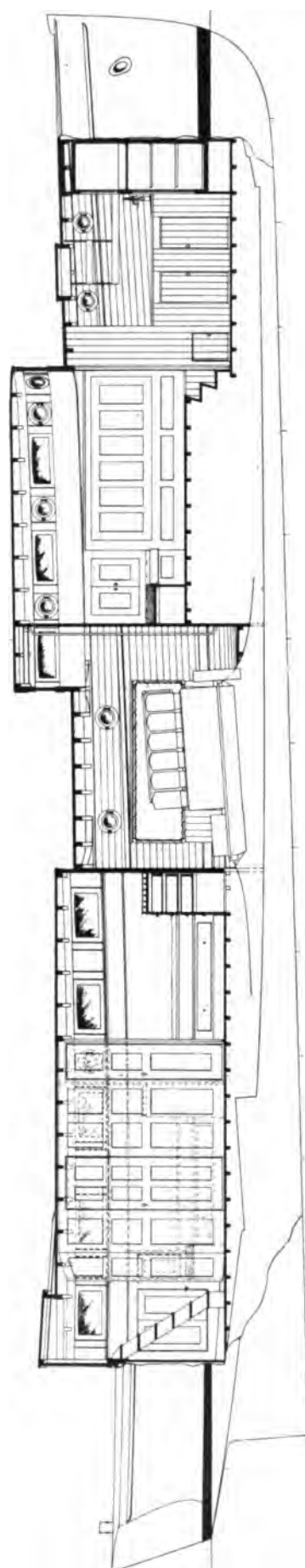
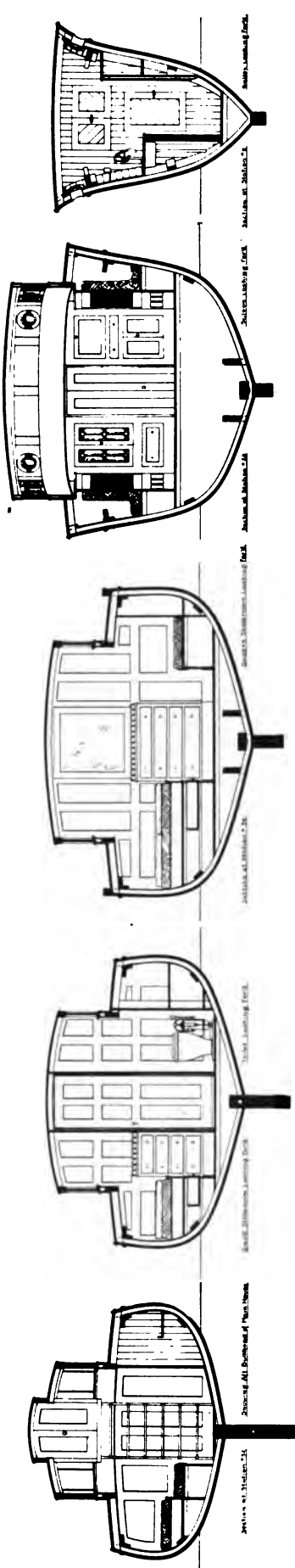
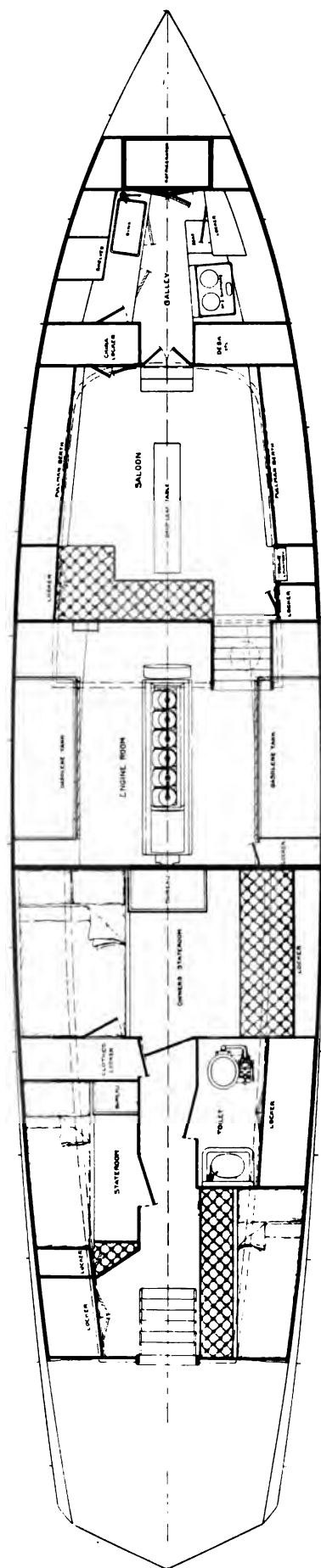
| | |
|------------------|------------------|
| Length o. a..... | 60 feet 0 inches |
| Length w. l..... | 58 " 0 " |
| Breadth | 12 " 0 " |
| Draught | 3 " 9 " |



Artmar, 60 Ft. O. A. Designed and Building by Fred. S. Nock for Commodore C. M. Dunbar, of Providence R. I.



Deck and Construction Plans of Sixty-Foot Power Cruiser Artmar



Inboard Profile and Accommodation Plans of Sixty-Foot Power Cruiser Artmar

FIFTY-FOOT FAST CRUISER

A FINE type of the modern fast cruiser is shown in the accompanying plans by Carlton Wilby, of Detroit, for a gentleman well known in Detroit automobile circles. Although only 50 feet in length this boat has the appearance of a much larger craft, as the design has been worked out to avoid as far as possible that topheavy and "bunty" appearance so often noticeable in the small cruiser.

The engines and gasoline tank are located below the bridge deck, which makes it a simple matter to arrange all engine controls convenient to the man at the wheel. As this compartment will have only a little over 5 feet headroom, this location for the engines might be open to criticism were it not for the fact that the forward end of the engine room comes under the raised deck and has ample headroom. At this end are located the work-bench and lighting set.

A large double stateroom with clothes lockers and toilet room adjoining are shown forward of the engine room. The after cabin is entered from the bridge with steps on the starboard side. Toilet room and galley are situated at the forward end, and the main cabin with transom berths each side is shown aft.

A roomy cockpit is provided at the after end, with entrance to main cabin. Cockpit and bridge are sheltered with removable canopies; supported on pipe stanchions, and the bridge deck is further protected by a spray cloth.

The power plant will consist of two of the new 50-h.p. Reynolds rotary valve engines, and with this power a speed of about 17 miles an hour is expected.

General dimensions are as follows:

| | |
|------------------|------------------|
| Length o. a..... | 50 feet 0 inches |
| Breadth | 8 " 6 " |
| Draught | 2 " 6 " |

TWELVE-FOOT POWER TENDER

THE accompanying plans show a 12-foot power tender designed by Richard B. Cook and owned by Mr. Nathaniel W. Littlefield of Central Falls, R. I., who is using the boat as tender to a 38-foot yawl, which has no auxiliary power.

She is a good carrying boat, seating five comfortably, and has carried eight persons. After a season of cruising with prevailing light winds, the owner gives a good account of her as a towboat.

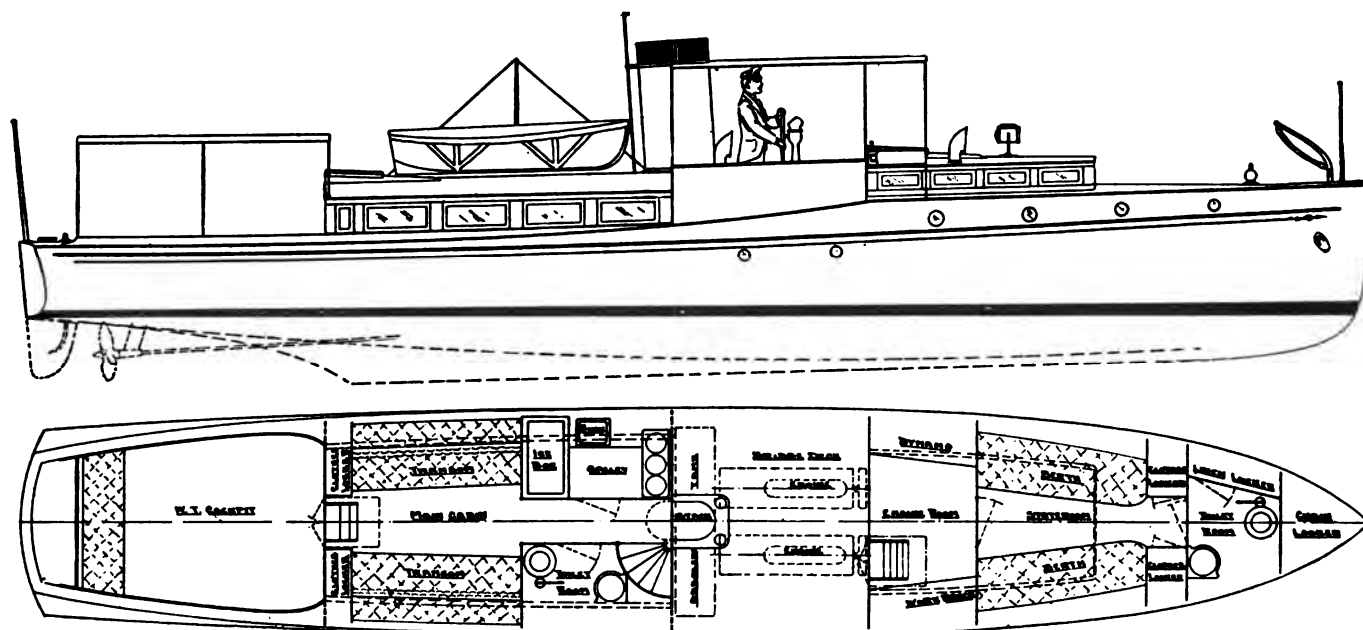
The power consists of a 3-h.p. Ferro Special engine. The planking is selected cedar dressed full $\frac{3}{8}$ inch; frames $\frac{1}{2}$ by $\frac{5}{8}$ -inch oak continuous from rail to rail; the keel, garboards, wales and deck are of oak, and the gratings, backboards and seats of mahogany. The finish is bright throughout, and all metal is copper or bronze.

The boat is not designed for speed, as may be seen at a glance; her speed with two persons on board being about $4\frac{1}{2}$ to 5 knots. However, the plan shows smooth lines with a lean entrance and ample flare forward. The after forms have been made full, affording sufficient buoyancy to allow of the engine and all connected with it, including the operator, to be placed abaft the lazyback which divides the interior, leaving a seating space 4 by $5\frac{1}{2}$ feet clean and clear for passengers. This arrangement has the additional advantage of bringing all the weight aft when the tender is light and in tow.

The bronze shoe on the skeg is made sufficiently strong to support the entire weight of the boat, thus rendering the propeller and rudder "fool-proof" when hauling out on a float-stage, or exploring in shallow water.

The principal dimensions are as follows:

| | |
|----------------------|------------------|
| Length o. a..... | 12 feet 0 inches |
| Length w. l..... | 11 " 3 " |
| Breadth | 4 " 3 " |
| Draught to shoe..... | 1 " 3 " |



Fifty-Foot Fast Cruiser. Designed by Carlton Wilby, of Detroit, Michigan

TABLE OF OFFSETS.

| Sta | Half Breadths | | | | Heights from Base | | | |
|-------|---------------|------|------|------|-------------------|------|--------|---------------------|
| | Deck | 3A | 2A | 1A | LWL | IB | Reel'd | A B Top of |
| 1 | 1.50 | 1.05 | 1.00 | 0.86 | 0.57 | 0.23 | 0.80 | 1.00 1.81 2.53 |
| 2 | 1.05 | 1.00 | 0.87 | 0.71 | 0.53 | 0.86 | 0.71 | 0.84 0.10 3.23 |
| 3 | 2.01 | 3.21 | 3.21 | 1.02 | 0.11 | 1.00 | 0.51 | 1.06 0.07 0.77 2.22 |
| 4 | 2.00 | 2.02 | 2.01 | 1.14 | 0.92 | 1.27 | 0.70 | 0.74 0.84 2.20 |
| 5 | 1.82 | 1.85 | 1.84 | 1.75 | 1.55 | 0.52 | 0.85 | 0.93 0.10 2.17 |
| Trans | 2.01 | 1.27 | 1.24 | 1.05 | 0.55 | - | 0.10 | 1.02 1.24 2.21 |

NOTE: Measurements in feet, inches and eighths.

5" Brass Rod Turned down to 1" when it passes thru plate bent not - removable.

5" Brass Strap on either side.

Backboard Manogony

Section Sta. 4

Section Sta. 3

Grating Mahogany

Mahogany 1x1 0 8 x 1

Planking 3" Cedar

Frames Oak 1 2 x 8

Stringer Oak 1 2 x 1 1/2

Thwart Brass Facing

Clamp 2 1/2 x 1 1/2

Coaming 1 1/2 x 1 1/2

Planting 1/8" Manogony

Deckboard 1/8" Manogony

1" Filing Pipe

Deck Plate

Fuel Tank 6 1/2 gals.

Buttressed Oak 1 1/2 x 1 1/2

Radius of Coaming 15 1/2"

Deck Oak 1 1/2 x 1 1/2

Seal Mahogany Edge 1/8" x 1 1/2"

Socket for Row Locks

Steering Lever

Brass tiller rope passing thru blocks under after gear and secured under coaming

Mahogany

Cast Bronze Shear

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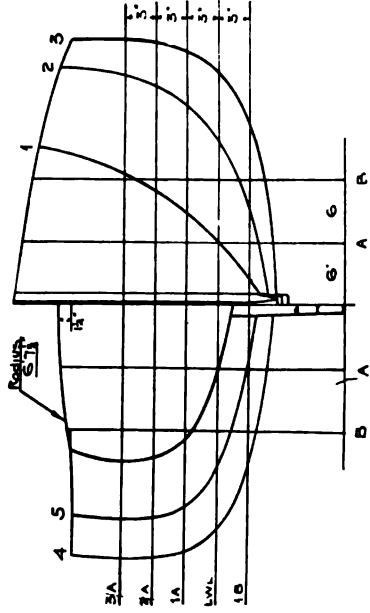
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Grating Mahogany

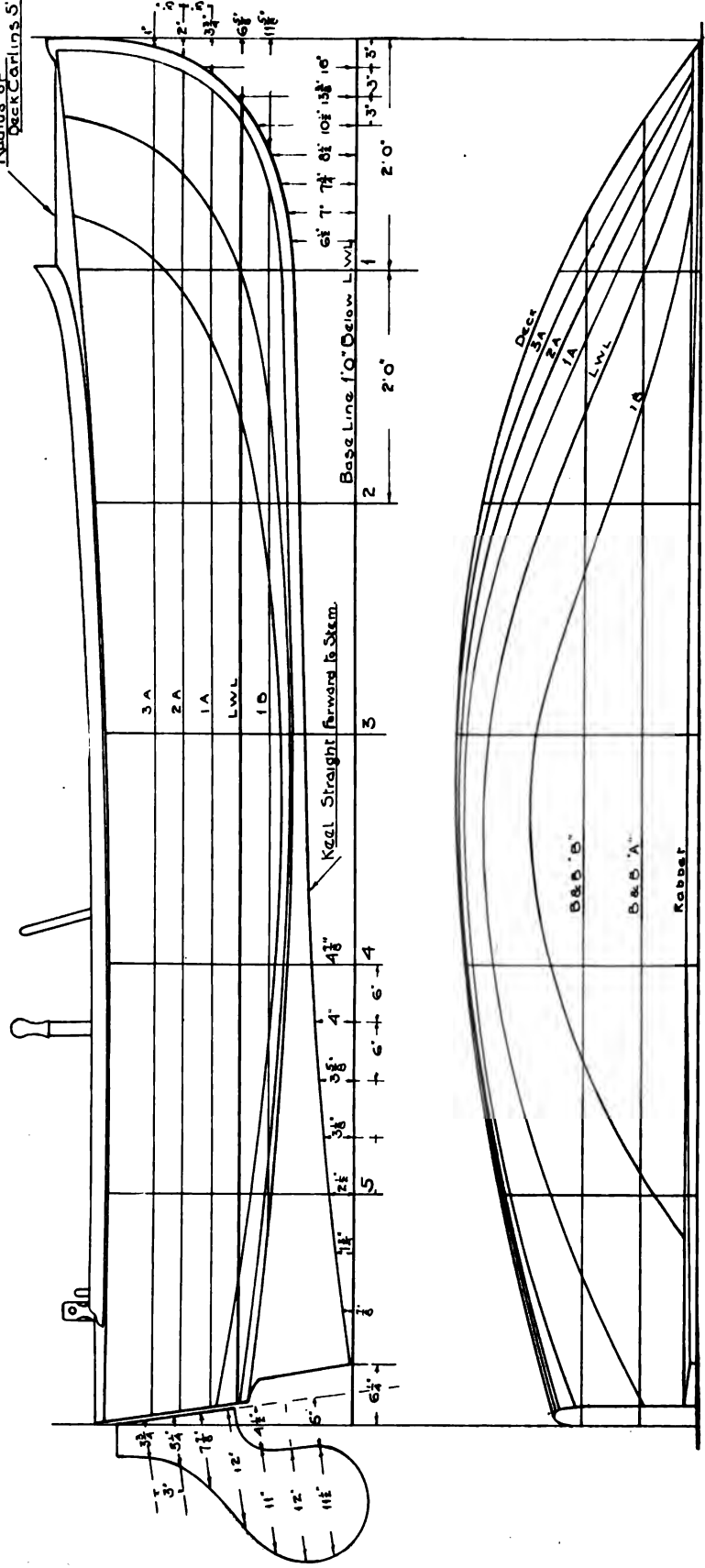
Mahogany 1x1 0 8 x 1

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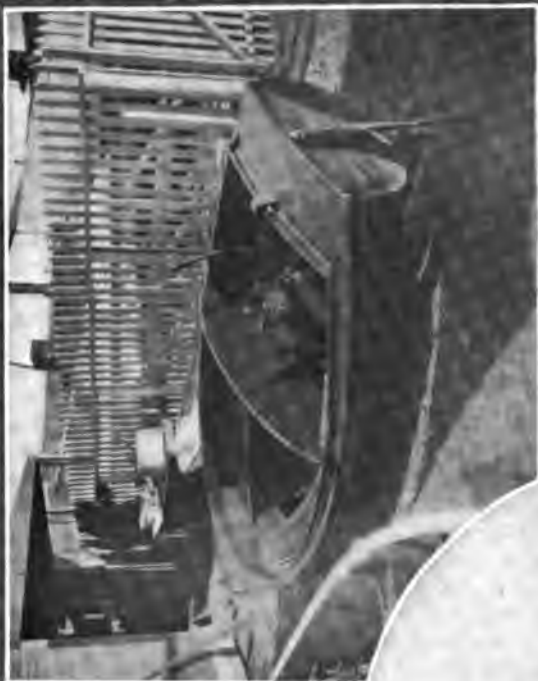
All Lines outside Planking



Radius of Deck Carling 5'5"



Lines of Twelve-Foot Power Tender



Twelve-Foot Power Tender. Designed by Mr. R. B. Cook

ROUND THE CLUBHOUSE FIRE

WHAT we have all expected and predicted would happen, has happened. Many a day I have stood on the bridge and watched one of the mail-boats go rushing by at 20 or 25 knots, thick or clear, driving through so as to make her tide and land the mails and passengers on time. We watched her out of sight, and then said, "Some day one of those fellows will hit a berg or another ship and there will be a terrible killing." I have talked with the men who drive those ships. They have shudderingly admitted the danger. "But what are we to do? We are put here to drive them, and drive them we must. If it is thick and there is ice ahead we will hit it." For this disaster the American traveling public are wholly to blame; it is their mania for speed that has brought about the abnormal and dangerous development of the Western Ocean steamship. The American has no love for the sea, every day upon it is to him a day of torture. But then is he ever happy anywhere unless he is being rushed along at a speed dangerous to life and limb? Hear the constant cry on ocean steamers, "Captain, can't you get us in to-morrow? Can't we hurry and land to-night?" etc. "Get us over this ocean as soon as possible," is the cry. "Never mind risking our lives, take the shortest route and rush your vessel through. Never mind the fog and ice or the other ships. Rush! rush! rush!" We have the same mania on land, trains running at 70 miles over tracks built for a speed of forty, and the passengers paying an extra fare for the privilege of risking a horrible death.

* * *

It is to play to this speed demon that the mail-boats have been taken across the cold water in Spring and Summer. To go South into the warm water meant a longer distance and more time at sea. If a line refused to let its ships take the risk, it lost the favor of the public. They transferred their patronage to the line that would send its ships over the shorter route, and take the chances of hitting ice or bashing another ship in the thick. The fact that none of these vessels carried sufficient boats to save a full passenger and crew list was well known, and often commented on. But steamship men, like the rest of the world, grow indifferent to such conditions; the dangers are too remote; long relief from serious accident made boats an ornament and a nuisance, and the less carried the less work and bother. Not two months ago an officer of Olympic said, in response to a passenger's remark that there were not boats enough, "Oh, we'll never need them; just carry them to comply with the law." Another theory that has sent many a ship to the bottom is the watertight bulkhead. No bulkhead with an opening through it is watertight. When you put a door through it, it becomes a menace not a safeguard. Bulkheads should have absolutely no opening of any kind through them, and should be carried up to the main deck intact. "That cannot be done," cries the designer. "Impossible," echoes the builder. Then, gentlemen, don't call them watertight, and don't tell people they will prevent ships sinking. I have known ships to be saved by their bulkheads, but they were solid partitions reaching from keel to deck.

The saddest thing to me in this terrible happening is that hundreds might have had a chance for their lives if only some one had been there with the brains to direct those inexperienced landsmen. I have spent hours thinking over what I would do in just such a crisis. I never go on a steamer but what my first duty is to look over the boats, to see what tackles they are fitted with, and how they are released. Then I look around and note what other stuff aboard can be used in an emergency. On Titanic there were probably four or five thousand mattresses, and yet no one seems to have thought of using them. How often have you looked over a ship side and seen a mattress, a sailor's "donkey's breakfast," floating perhaps days after it was thrown over from some inbound packet. There were hundreds of wooden cabin doors; why were these not torn off and thrown overside? Because nobody was there who had been trained to think of these things. If you are ever caught on a sinking steamer remember this: Take two mattresses out of the bunks, place between them an empty suit-case, a cork life-preserver, or if you cannot get anything else two pillows or any bulky article that will float, take the bed sheets, twist them, and lash the mattresses together, sandwich-fashion, with the suit-case or life-preserver between. Here is float that you can lie full length on and that will keep your head and body above water. When in the water several of these can be brought together and lashed side by side and thus be prevented from capsizing. I know a man who saved himself by taking two water-jugs and stuffing their mouths with towels; he floated with a jug under each arm until picked up. He told me he thought of this method years before, and when the hour came it flashed back into his mind.

* * *

The loss of Titanic is a dreadful lesson, but, like all such that have from time to time been given to man, it will go unheeded. The same disregard of safety when safety is present will rule, and ships will speed merrily over the ocean, bearing crowds of passengers only too delighted if they break a record and get to port before the sunset gun closes quarantine. There is one lesson that man never has learned and never will learn, and that is to put into power the competent, to choose for his governing masters the trained, experienced, and intelligent. Instead, he allows his governing masters to choose themselves, consequently we have men entirely ignorant controlling our affairs and dictating the laws and conditions under which we shall live and travel. As a specimen look at the British Board of Trade: a collection of incompetent civilians, acting under the advice of theoretical landsmen, making laws for navigating the seas. Was there anything more criminally imbecile than the late work of this body in raising the Winter load-line, a piece of folly that has sent dozens of ships and their crews to death. The Winter load-line should have been sent down, not up. Would these men have sent it up if they had spent a stormy night on the bridge of a deep-loaded vessel? No; but they are ignorant politicians who, afraid to offend the clamoring vessel owners, played politics, the stakes being the lives of men. Look at our Senate, sending three

hayseed senators to investigate a shipping disaster; men who by their questions show they know nothing about the sea. What would the public say if we sent three ship captains to inquire into a mine explosion in Colorado? It is the same story: men designing and building vessels who never go to sea in them, men making sails who never set or trimmed one, men writing about the sea who never saw it.

* * *

There is only one knowledge that is of value,—the knowledge gained by experience; all other is secondary and of questionable value. It is not so much what experience teaches but what it unteaches. You learn to unlearn, a most difficult lesson, the most difficult of all. Theoretical knowledge is piffle; it is the empirical that counts. All the speculations of all the philosophers were not worth the experience of Magellan; they with all their talk proved nothing, he by his voyage established a fact. It was this theoretical humbug, mathematical office work, that sent Titanic to sea an unsinkable ship. This monster was unsinkable because calculations proved she was so, calculations worked out by men with no seagoing experience. The Board of Trade man sits at his table and proves that with the Winter load-line where he wants to put it, the ship will have ample reserve buoyancy. Yes, certainly on his paper; but how about on a black stormy night at sea? O man, how long will you let yourself be governed by imbeciles and your affairs be regulated by blockheads?

* * *

Now I will give the world a piece of advice. It will not accept it, because it is a product of sense, and therefore at variance with all the accepted methods of regulating our earthly affairs. Choose three veteran captains of each of the maritime nations and form them into a Board with international powers, and give into their hands absolute control of the Western Ocean traffic. Let them plot and establish the routes, regulate the speed, specify the equipment, and make rules governing the lights, signals, and the use of the wireless telegraph. These men know what is wanted; you don't, your Congress doesn't, your Parliament doesn't; the vessel owners do, but they won't because they are after money first, last, and all the time. The members of such a board would safeguard your lives because they would be safeguarding the lives of men who have stood with them on the bridge, and they know what it means. These old skippers would be free from owners' influence, and free from political influence, they would bring to the council table the experience of years. They would not have to call and question advisers and experts, they would be their own experts and advisers. You and I who have been down to the sea in ships will see the sense of this suggestion, but will our imbecile blockhead rulers? Never! There's nothing in it for them.

* * *

Safety at sea is the product of constant vigilance. Never allow this vigilance to sleep in yourself nor in others, if you can possibly help it. It is not only necessary that you should be constantly on the lookout, but those under you should be trained to be eternally on the alert. Nothing is too small to notice and care for, if it concerns the safety of your vessel. The majority of ship officers I have been with have

shown an interest in their duties, especially when on the bridge, and the same with lookouts; but there is one fault that is too common, and one that there is no question has often led to disaster, and that is, what a watch officer cannot see or does not see a lookout cannot have seen. I make it a practice never to ignore or deny a lookout's report until it is proven groundless. It is better to believe he has seen the thing or something until you are absolutely sure he has not. Once while running in for the Hook in a thick fog, the lookout reported a buoy; the officer on watch laughed at him, as we were supposed to be ten miles offshore. I saw the buoy at the same time and told the Captain so. He stopped the ship and took a cast of the lead; we had about three feet under the keel, and in two minutes more would have been aground. No doubt Titanic's bridge was warned of ice by the lookout; but the officer on watch did not see it, so nobody saw it. Orders were to push her through, make a record, land the passengers early, big advertisement for the line. Everybody delighted, Skipper congratulated, chief thanked. Same old story, the office on shore running the ship at sea.

* * *

You people will now realize the truth of what I have preached to you for years—that safety at sea has nothing to do with size, and that because a ship is big she is not necessarily seaworthy. As I have told you, small vessels are safer than large, providing they are properly designed, strongly built, thoroughly equipped and skilfully manned. The risk of being overcome by a storm or being destroyed through what seamen call stress of weather, is only one of the dangers of the sea; there are others to which all vessels are liable and which are more likely to wreck large than small craft. Of these collision is the most to be dreaded, and from a collision a small vessel runs scant risk. Huge steamers cannot go slow, because they will not answer their helms at small speeds, and it takes a long time to turn them on their helms; whereas a small vessel moves slowly and answers her helm quickly. A long straight keel vessel, like a steamer, pivots on her bow, so that when the helm is put over it is her stern that turns, not the bow, and she continues to approach the object she is helming to avoid until she swings round.

* * *

But the greater danger on large vessels arises from the enormous increase of the attractive force. The attractive force between two large steamships, or a steamer and a berg, is enormous, and unless worked against will bring them rapidly together. It is this and not suction that draws vessels together; there is no suction between vessels in deep water. This attraction is what causes collisions in fogs and strandings especially on high coasts. It is dangerous because it not only affects the vessel but affects the minds of the men on the vessel. It pulls every particle of matter, even the brain matter of the crew. In thick weather or a dark night, if left without the guidance of a compass, a man will invariably direct his vessel towards the land or towards another vessel if close to it. I have tried it time and time again. Your eminent office philosophers will probably deny this and assert that suction, and currents, and waves of one kind or another are the cause of these collisions and strandings, but try it for yourself with two small

pieces of match stick in a glass of water. The laws of nature operate in the same manner in a glass of water as they do in the ocean, you will admit, even if you are an expert.

* * *

I never remember any disaster affecting me as this one did. It made me fairly sick. Even now it seems like a dream, as though it could never have happened, that monster sinking as she did in less than three hours after receiving the thrust. The calm water made the thinking of it worse, for with no sea on nearly all could have been saved if the boats had been there. But, thank God, the officers and crew did their duty like sailors.

"No fireman shirked his duty, and no seaman left his place,
For the honor of the calling and the glory of the race.
For the very pride of nations—the pride that lifts them high—
Is the strength to do their duty when the straw is drawn to die;

And in this the Anglo-Saxon—I say it not in boast—
Has gained the heart to perish like that Roman at his post.
For the first thought in our danger, the last before we pray,
Is our ancient grace for battle—*And what will England say?*
O Life, we cannot shame her, for all that thou canst give,
When brave men stop to perish and weak men flee to live!
For her glory's in our keeping, and her face shows grandly when

They bring the log and tell her that we lost the ship like men."

Nothing man can write or can utter can add to the glory of those who died, passenger or crew. But perhaps some day such a time for us will come, then let the example of these men and the example of others who have gone as bravely to an ocean death be with us, and help us to meet our fate as they met it that calm Sunday morning in fifty West.

* * *

Now to other things. In the *New York Times* of April 23d, I read what is called an interview with a yachtsman regarding racing men and racing rules. It does not give the yachtsman's name but he has evidently drank deeply at my well, and expresses clearly, forcibly what I have been trying to hammer into you people for years. I repeat here below part of what he says, as I couldn't say it better myself:

"Men who undertake to manage races, either of sailing yachts or power boats, should, first of all, have had some experience in actual racing. They should be of the temperament of which judges are made. They should have very clear ideas of justice and equity. They should know the rules backward and forward. They should first serve as junior members of a committee under experts at the work. And they should give everlasting attention to the detail of arrangements, foresee and forestall every complication or misunderstanding, and then should be absolutely indifferent to any and all influence that may be brought to bear against them in any way other than a presentation of evidence."

All of which means to say that the management of races should be in the hands of men who have or are racing, and not in the control of piazza and office sailors. To understand racing so as to properly manage races a man must have been brought up in the sport and have thoroughly learned the game from stem to stern.

* * *

If the Manhasset affair had been in the hands of racing men it never would have been mishandled the way it was. A racing man would have decided at

once that it was simply a matter of right and wrong and not a question of technical detail and have awarded the cup to the man who won it. This dispute came under the higher or traditional law of the sport, which declares that no man's chances shall be jeopardized through the mistakes or omissions of another. If a committee appoint and constitute a man their official measurer they must abide by and accept responsibility for his errors or omissions, unless at the time the certificate is presented and before the boat races a reservation or protest is made. If the committee accept the measurer's certificate without reservation and allow the boat to start, they cannot at the close of the season question the boat's admissibility or disqualify her for not fulfilling the requirements of the class. The owner having sailed his boat in good faith under the official certificate is entitled to the prize if successful. I was pleased to see that my old friend, Mr. Sparkman, had the sense and pluck to stand up for justice in this case.

* * *

This issue of the magazine will have good sailing into every port of the world, and may it rouse up and spread the dear old sport. What it has done for the pastime abroad no man can realize. It is only when we see everywhere the American type of boat sailing and powering the waters, that we get some idea what the old packet has done for yachting and boating. But beside booming the sport, it has brought to its advertisers a splendid foreign business. It was the first to seek out and develop the foreign trade, and in this world-wide search not a harbor was left unvisited. Unfortunately a lot of pirates and wreckers have brought into our wake and are doing a lot of damage abroad by circulating the advertisements of crooks and beats, of which I am sorry to say there are not a few in this country. THE RUDDER's pages are clean of these fellows. THE RUDDER stands back of all its advertisers and will not knowingly accept the advertisement of a beat or crook. You can safely order from any of its advertisers; they are the cream of the trade.

* * *

We have lately lost by death one of our kindest, oldest and most constant friends. A man who stood by THE RUDDER for years and always had a helping hand and good word for the publication. Abraham Snyder, President of the Buffalo Gasolene Motor Company, was one of the men who first recognized what I was trying to do and came generously forward to help in my work. Mr. Snyder never let the commercial weigh in his estimate of the worth of a yachting publication. He held the broad and correct view of such magazines, and supported them, not because they brought him business, but because they were arousing and building up the sport. There are too few men like Mr. Snyder, and when we lose one we miss him. Another old friend is gone—Ned Brandt; a veteran reporter of the sport. Brandt I have known many years, and though at first we did not get along very well together, we at last became good friends and I grew to like the old man very much. He knew hundreds of yachtsmen and had been present at almost every important yachting event of the last thirty years. Except McVey he was the last of the old group of yachting reporters. Men who could write well on the sport, and did.

THE OLDMAN'S MAIL BAG

AS the spokesman of the quiet, shy fellows forward, whom you are kind enough to call the "Storm Jibs" we wish to thank "The Oldman" for granting our request for permission to lay aft to the quarter-deck for a few words with you. This time it is not to register a kick as to the scarcity of plums in our duff, nor yet to object to the number of horseshoes recently found in the salt-horse kit, but only to assure you of our deep appreciation of your efforts in our behalf.

We have read with much resentment of your recent experience, in which, after cheerfully giving your time, attention, and of yourself gratis, to assist a certain organization, to find that after having acted upon the suggestion of the club's officers and solicited each member by means of a personal letter to subscribe to THE RUDDER, to receive such a cold deal. To the man who reads "Brother's copy" we take off our hats; he is an honest man and showed courteous appreciation.

This was not the deal you deserved, but fortunately you were prepared for a disappointment. As a slight balm to your hurt, my mates and myself ask if you have ever fully realized the great appreciation of the regular crew of "The Old Hooker" who for years have been educated, at times amused, and always entertained by your articles and those of your colleagues, Sheppard, Thurber, Goodwin, and the rest, all written in masterly style by men who are of us, who are Corinthians, first, last and all the time, and who love the deep sea as we do.

We are amazed oftentimes at your continued efforts for our sport, so apparently unappreciated.

Don't be discouraged, the "Storm Jibs" have signed on to stay; you couldn't drive us ashore with a handspike. Our bags are in the forecabin, not for one cruise but for as long as the "Old Hooker" floats.

We appreciate THE RUDDER edited by a man who is both a sturdy, able mariner and an able editor. In what other publication do we have this splendid combination? Give us the man who practices what he preaches, and who dares to do. We are all better men and sailors for THE RUDDER.

Don't take those rocking-chair sailors too seriously; we need them; we could have no clubs without them; they are ornamental; they have their place in Nature—but oftentimes they know not what they do, for they are mostly good fellows, and their actions are often more the result of thoughtlessness than anything else.

We thank you kindly for your attention and assure you of our continued loyalty and support.

Sir,.....yes, indeed, thank you. We certainly do accept your cordial invitation to splice the main brace, to the continued success and prosperity of THE RUDDER.

"THE STORM JIBS."

* * *

BLOCK ISLAND STORY

I wish to tell you that your articles in the March and April issues of THE RUDDER about Block Island, her people, and her former typical boats, have entertained me delightfully. When I was a small boy,

living in Westerly, R. I., these Block Island double-enders frequently came there, and it was the prevailing opinion that they could do anything, and go anywhere; that they were invincible—and your articles have shown that opinion was reasonable (steam-craft were a doubtful quantity at that period). Having long ago left the happy shores of Rhode Island, your paper gave me the first intimation that the boats in question are obsolete. I read and reread the account of the wreck of the good ship Ann and Hope, of Providence, and the dear old Rhode Island names, once so familiar. I do thoroughly enjoy THE RUDDER, especially the deep-sea portion, and do not think any genuine shellback can withstand the lure of your publication and its charming pictures.

GEO. R. DURAND,
Captain U. S. N. (retired).

* * *

SEA BIRD IN JAPAN

You will be interested to learn that a Sea Bird has been built here and another is under construction as well as a baby Sea Bird 14 feet long. Photographs will be forwarded in due course, which you can either make use of or put into the waste-paper basket. We had a trial spin down the bay in Sea Bird to Uraga (14 miles) under mainsail and squaresail. The trip took us 2 hours 20 minutes. The next day we started back against a strong headwind under double-reefed mainsail only and, although she went to windward in great style, we turned back because some of us on board came away without oilskins and the weather was very cold and wet. We had no mizzen with us, which was returned to the sailmaker for alteration. She is a beautiful sea-boat and dry; a better boat of her size will be difficult to find.

My Four Winds is almost completed and she looks all that you claim for her. The only thing that has not come up to expectations is the absence of any sheer. The sails for the boat are coming from England and blocks from Merriman Brothers. As the mainsail will be loose-footed, I am of the opinion that the diameter of the boom should be increased and, if you can advise me on this point by giving dimensions, I shall be greatly obliged.

Captain Voss, who voyaged round the world in an Indian canoe, is now a resident here, and he admires both Sea Bird and Four Winds. He is willing to sail round the world in either of the boats if any one will go with him.

I know the Oldman must be sick of receiving letters like this but trust he will grin and bear it. Wishing you every success,

W. B. MASON, JR.

* * *

QUESTION NO. 1

Two boats approaching starting line, boat No. 2 has windward position, wind being North, both boats being on starboard tack. The skipper of boat No. 2, finding, upon consulting his watch, that he is approaching line too soon and if he keeps his course, he must pass over line before gun fires for starting his

class. Just having enough room between boat No. 1 and stake-boat, he demands that the skipper of boat No. 1 bear away in order that he may run down on the line.

If he should try to come about he would foul stake-boat. The skipper of No. 1 refuses to alter his course upon being hailed by boat No. 2 and forces No. 2 across the starting line. Immediately after forcing No. 2 across line, No. 1 almost instantly bears sharply away and runs down line towards stake-boat A until starting gun fires, and then immediately crosses the line still holding starboard course.

After race, skipper of boat No. 2 protests that No. 1 fouled. This has never been settled by the regatta committee.

The writer claims that No. 1 is in the right; that if No. 2 misjudged time he cannot force the leeward boat to give him room as the starting gun had not fired. The writer also stating that if gun had been fired, it would have altered the conditions, if it was a question of having No. 2 foul stake-boat by not giving No. 2 room to pass between the starting marks of the stake-boats. Kindly give us your opinion.

[No. 1 is in the right. No. 2 is guilty of what land lawyers call contributory negligence. If gun had been fired No. 1 would be in the wrong.—EDITOR.]

* * *

QUESTION No. 2

Two boats nearing a turning mark on one leg of a course, boat No. 1 leading by a small margin, but is to leeward of boat No. 2. Boat No. 2 has not established an overlap but has almost reached a position to obtain same.

The skipper of No. 1, realizing the position of his rival, determines to defeat, if possible, the chance which skipper No. 2 is trying for. Therefore, the skipper of No. 1 immediately upon being able to round this stake-boat by tacking down helm on his boat and commences to alter his course for the port tack. Skipper No. 2, realizing that he, by holding his course, finds that he must either foul No. 1 or stake-boat, hails No. 1 and demands inside berth at stake, claiming No. 1 must give him room to round stake-boat. No. 1 refuses, stating that before he (No. 1) altered his course, No. 2 had no overlap established; therefore No. 2 must bear away and pass under stern of No. 1. No. 2 refuses and runs into No. 1, causing a bad mix-up. No. 1, at close of race, protests No. 2 for fouling. No. 2 is, however, awarded prize, the protest not being sustained by regatta committee. The writer claims that No. 1 had right of way and that No. 2 fouled by trying to squeeze in between No. 1 and stake-boat. Will you kindly give your opinion?

[No. 2 is in the wrong being the overtaking boat.—EDITOR.]

* * *

QUESTION No. 3

BOATS A and B are approaching a certain stake-boat and the question arises as to the right of way. Boat A is closehauled on starboard tack and can, by keeping its course, just fetch the mark, and must then tack in order to fetch stake-boat No. 2. Boat B is running down to stake-boat No. 1 with wind abeam, but on starboard reach. If boat B keeps its course, it will arrive at stake-boat No. 1 at the same moment that boat A arrives. Boat

B's skipper demands that the skipper of boat A bear away to give him room to round mark. The skipper of boat A refuses to do this, claiming that being closehauled he commands right of way and that boat B must pass astern and then round to avoid collision. The skipper of boat B refuses to do this and the boats foul and overturn stake-boat. Which is in the right?

[Boat A is in the right. Rule.—A vessel having the wind free must give way to a vessel closehauled.—EDITOR.]

• • •

DESIGNING COMPETITION

A TYPE of power boat which should prove popular, but which seems to receive little attention is the power houseboat. Some authorities claim that there is no such vessel as a *power houseboat*, but the term as we understand it, is descriptive of a vessel designed more for comfort than speed, and having the exterior appearance of the immobile houseboat rather than the power yacht. It would be hard to define exactly a power houseboat, since the slow moving large displacement power cruiser might safely be described as such. However, we have decided to hold a Designing Competition for this type of craft, and in order to give the designers all possible leeway in working up to the interior accommodations, have placed but few restrictions on the hull. The craft must not exceed in length 50 feet, and must have a breadth of beam of, at least, one-third of her length.

The boat must have a maximum of livable accommodation, that is, every person, aside from having a bunk, must have a place to keep his dunnage. Boats must be of a seaworthy type, and in judging the plans the committee will take into consideration generally, exterior appearance, engine installation, ventilation, light, plumbing, accommodation, security and accessibility of fuel tanks, boarding facilities, tender handling, ice-box, water tanks, and hull form. Boats must have adequate cooking facilities, and water and food capacity for a week's cruise, also fuel capacity for a non-stop run of twenty-four hours at full speed.

The competition will close on October 1st, and it is earnestly requested that all drawings be on tracing cloth of such size as to readily reduce to the size of our page. In the last designing competition the contestants cheerfully paid no attention to this simple requirement, and caused us no end of trouble.

The judging will be done by a committee of three—a naval architect, a practical engine man, and an experienced yachtsman. In the event of a tie, and the committee being unable to determine between two or more designs, they will all receive a prize of the full value.

The prizes will be as follows: Fifty dollars for the best design, twenty-five dollars for the second, fifteen dollars for the third, and ten dollars for the fourth. Any boat that can navigate Long Island Sound in comfort and safety during the Summer months will be acceptable to the committee.

As length makes for speed so does breadth make for comfort, and the craft we have in mind will have an abundance of practical interior accommodation, a comfortable upper deck, ample freeboard, and yet have sufficient power to plug along at reasonable cruising speed.

THE

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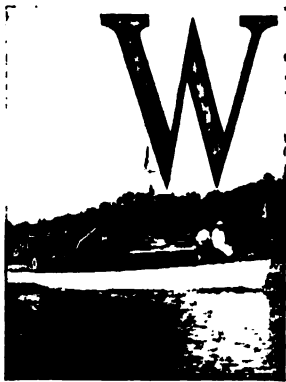
JUNE, 1912

No. 6

WASHINGTON TO LAKE GEORGE IN A POWER DORY

Percy E. Budlong

PART I



WITH the coming of the power boat, affording such excellent facilities for carrying congenial parties on trips of greater or less extent, single-hand cruising seems to have greatly decreased in popularity. Yet a trip of this kind has many advantages of its own, some of which are evident, while others will be touched on in the course of this narrative.

Last Summer I found it necessary to transport my small cabin launch, Bunny, from Washington, D. C., to Lake George, New York. Of course it could be sent by rail; but the objections to this mode of transportation are too numerous to mention. A couple of friends who were anxious to make the trip found at the last moment that they could not leave. So, remembering a number of pleasant single-hand voyages in the past, I decided to run the boat to Lake George alone.

Bunny was built by the Toppan Boat Manufacturing Company of Boston in 1907. She is of the dory model, 26 feet over all, 6 feet breadth of beam, and is propelled by a 5-h.p. make-and-break engine. The cockpit is amidships, giving some of the advantages of the bridge-deck model. The main cabin, forward, contains two berths, a kerosene and an alcohol stove, several cabinets for dishes, etc. A large cupboard is just abaft the gasoline tank, the latter being of seamless steel, separated from the cabin by a watertight bulkhead. The cockpit is 5 feet long by the full width of the boat. The engine is sheltered in a snug cabin of its own in the stern, a sliding hatch in the top and two doors in front making it readily accessible. The steering wheel is on the port coaming; and while seated, and steering with the left hand, the navigator can reach over and make adjustments to the engine with the right hand. The engine is started on batteries by rocking it against compression, and is then switched on to a magneto. A waterproof canopy with side curtains keeps out

sun and rain, while wire netting over the cabin windows and a sliding screen door for the cabin doorway exclude mosquitoes at night. Thick kapok cushions, covered with green corduroy, make comfortable berths, and there is a simple electric lighting system.

Friday, August 18th.—On August 18, 1911, in the middle of the afternoon, the start was made. Skirting Potomac Park, the boat soon ran past the city and down to Alexandria. About this time a squall broke, and for a few minutes the surface of the river was covered with rushing waves, and the wind howled past the boat, but no rain fell. Soon the clouds passed around to the South, the wind died down, and quiet reigned for the rest of the day.

As we had started so late, a stop was made for the night just below Mount Vernon. On the North was the former home of America's first President; on the South was Belvoir, once the home of Lord Fairfax, by whom Washington was employed as a surveyor in his younger days. The Belvoir mansion is gone; but the fine bluff on which it stood, coming boldly out to the river and covered with a magnificent forest, is a prominent feature of the landscape. Here cannon were planted in the War of 1812, and shelled the British ships as they retreated down the Potomac after burning the city of Washington.

A supper of corned-beef hash, bread and butter, fruit and cake was soon made ready and eaten. Then, after making up the berth for the night, the tender was pulled alongside, and the captain stepped into it. The tender is a tiny decked canoe, 11½ feet long, and is a miniature lifeboat, as it has air-tanks in each end. A double paddle is used, and the occupant leans comfortably against an adjustable back-rest.

A schooner slipped silently past the launch, bound downstream, as the captain paddled out from the anchorage to the middle of the Potomac, where for some minutes he sat quietly with the paddle across the gunwales, enjoying the scene. There was no moon, but the stars shone brightly, and once a glorious meteor shot across the sky. On the hillside of Belvoir a bonfire crackled merrily, lighting up the surroundings with its red glare, while clouds of misty smoke drifted away on the evening breeze. From the

wooded shores came the notes of katydids and crickets, and the occasional cry of some night bird.

At length the captain paddled slowly back to the launch, whose dim outline could be faintly seen in the gloom. Stepping on board, he turned the switch, and a flood of light illumined the white-painted interior of the cabin. Soon the navigator was tucked snugly into the warm blankets, and the swaying anchor-light kept guard over the little boat all night long.

Saturday, August 19th.—In the morning a plunge over the side before breakfast started the day in good shape. Bacon was soon sizzling over the blue-flame stove, and by seven o'clock we were off downstream. By the way, "we" in this story means the boat and its skipper; it seems less lonesome than "I."

A fine run followed down to Maryland Point, 45

This would be a mean place to be caught with an on-shore storm; but when Bunny passed the weather was calm, and there was no danger.

Directly opposite the cliffs lies Blackstones Island, a low, flat stretch of land, near which is all that remains of Heron Island, now submerged at high tide, and a mere sand-bank when the tide is low. It was at these islands that the first colonists of Maryland, led by Leonard Calvert, landed in 1634, thinking to locate their permanent settlement here. But after a short stay they moved up the St. Marys River, leaving the islands to the Indians.

Instead of anchoring at sunset we kept on, so as to get as close as possible to Chesapeake Bay. Smiths Creek, an excellent harbor about 5 miles from the bay, was our objective point. As the sun set the lights from Piney Point and Ragged Point shone



Bunny and a Pretty Spot on the Delaware and Raritan Canal

miles below Washington, where the river first becomes noticeably salty. Here, the breeze being fresh from the North, Bunny was rapidly overhauled by a bugeye, which made such a fine appearance that her picture was taken as she foamed along. The bugeyes are the typical craft of Chesapeake Bay, sharp at both ends, with leg-of-mutton sails. Many yachtsmen are familiar with their characteristics, of which the photograph gives a good idea.

From Maryland Point to Mathias Point the river runs Northeast; then it turns once more to the Southeast, and pursues this course to its mouth. On this stretch the boat ran along all the afternoon, the wind being light and variable. The Nomini Cliffs, on the Virginia side, are a striking feature of the landscape here, rising abruptly from the water's edge. There is an extremely hard sand bottom in front of them.

out; and these and the low, dark line of St. Georges Island gave the navigator his bearings. A cold supper was served as the boat ran along. The water soon began to sparkle with phosphorescence; and when it was completely dark the whole course of the boat was outlined with a silvery glow, while swirls of bluish light shot upward from the submerged exhaust-pipe. The tender was silhouetted against the glowing wake, and a million bright drops sparkled and were cast aside as the boat plowed on her way.

At length Smiths Creek was reached; and after passing between the beacons at its entrance the engine was stopped while the little electric searchlight was rigged up. Slower and slower the boat drifted, finally coming to a dead stop on the glassy surface of the creek. Crabs splashed briskly at the top of the water, but otherwise there was not a sound. When



A Bugeye on the Potomac River

the searchlight was ready it was hard at first to locate any definite object, as the shores were pretty far off. But gradually one after another was picked up—first a stake marking the edge of a shoal; then the ghostly outlines of a building on shore; finally Miller's Wharf, the chief landing in the creek.

Slowly the little boat crept up past the steamer landing, the anchor was dropped in a place well known from a visit here last year, and the captain crawled into his bunk and fell asleep.

Sunday, August 20th.—Sunday morning was spent in visiting friends on shore, and about noon the voyage was resumed. A school of porpoises played around the boat as she emerged from Smiths Creek. Upon reaching Point Lookout, at the mouth of the Potomac, a halt was made for a few minutes while a cold lunch was eaten, supplemented with hot coffee from the vacuum bottle. A moderate wind blew from the East, and, as usual, there was quite a commotion on the shoal making out from Point Lookout; but on the bay the water was not rough. When lunch was disposed of, and a few trifling adjustments made to the engine, the launch rounded the Point and started Northward on Chesapeake Bay.



The Nomini Cliffs



Point Lookout

Some rolling resulted from the beam wind and sea, but it was not serious, and as the day wore on the breeze lessened. About 2:30 the trees on the Eastern Shore of Maryland became visible. A little later the captain spied three masts sticking up out of the water near the shore, and steered for the spot to see what was the matter.

Upon nearing the masts they were found to belong to a sunken barge or schooner. Allowing the launch to drift with the tide, the captain stepped into the tender and paddled between the masts, thinking the hull might be visible. But no; nothing could be seen for many feet down through the clear, green water; and only the three sturdy masts, so firmly planted in the invisible hull, gave evidence that a wreck had occurred here.

For an hour or so, Bunny skirted the shore, the breeze freshening considerably as Cedar Point was approached. When the mouth of the Patuxent opened up it seemed wise to turn into it for the night, as the coast North of the Patuxent is unbroken for many miles. The captain had often heard of Solomons Island, but never had been there; so the launch was headed for it. A large fleet of vessels



The Wreck



Marine Railways at Solomons Island

was anchored near Drum Point; but next morning, when Bunny emerged, all of them had lifted anchor and sailed away.

The island is one of the most interesting spots Bunny has visited. Its contour is that of a crescent enclosing a very small islet. Bridges, points of land, houses, stores, and marine railways are everywhere, and all about there are evidences of thrift and comfort.

The place affords a charming combination of marine and land life. The population lives, moves, and has its being principally on the water, but retires each night to snug homes on the shore. Water lanes lead everywhere; bugeyes and other local craft are anchored in the most out-of-the-way spots; in short, the whole place is a sort of rural Venice. Here one may have solitude without loneliness—the charms of water without the perils of the deep—the sights and sounds of the farm along with the salt water and its finny and crustaceous inhabitants.

As Bunny lay that night at her quiet anchorage half a mile up one of the creeks, the ears of her captain were greeted with the tinkle of cow-bells, the hum of katydids, and the gentle splashing of crabs in the water alongside. Occasionally there was the long-drawn howl of a dog on a distant hillside, or the



The Ox-Team Still Flourishes in Tidewater Maryland

note of a whippoorwill in the forest close by; and now and then some inquisitive crab would tap, tap, tap on the bottom of the launch with his hard claws. Far across the water rang out the merry laugh of some care-free darky, and the measured dip of oars told of the passing of an unseen boat.

The captain retired early to his comfortable bunk, where he stretched out luxuriously on the cushions and meditated on the good time he was having on the cruise. Cool, delicious air strayed in and out of the port-holes; if there were any mosquitoes the screens kept them at a distance; and soon slumber reigned on board the little craft.

Monday, August 21st.—Before daybreak the crew was astir, and breakfast preparations were under way. Cows lowed on the nearby farms, and in the woods back of the launch the crows cawed vigorously, while the busy little kingfishers plied their trade from one spot to another. An unusually heavy dew covered the cabin roof, and dripped down from the awning. Up rose the sun, and cast its first beams over the treetops, gilding them halfway down, while their lower portions remained in dense shade. Mist rose from the water, and floated gently along with the first light airs of the morning breeze.



Typical Scene at Solomons Island



Leaving the Patuxent



Cove Point Light

Breakfast was prepared and disposed of, some coffee put in the Thermos bottle for luncheon, and we started down the creek. Crabbers were hard at work in the harbor, and the people employed on board the various vessels were stirring about; but most of the little white houses scattered about the shores were still in a quiescent state.

A moderate Easterly breeze blew as Bunny sailed out on the bay. The bluffs on the North side of the river's mouth are quite imposing, and a picture was taken which shows them in the background. We ran close to Cove Point Light, whose symmetrical white shaft is a well-known landmark for vessels passing up and down the bay.

There were many picturesque places along the beach, and once the captain went ashore to take some photographs and stretch his legs. Near St. Leonards there lay at anchor a great, high-sided three-masted schooner—Elm City, of New Haven—the very embodiment of dignity and apparent staunchness. Yet a few weeks ago the newspapers reported her abandoned and in a sinking condition off Cape Hatteras; and she has since sunk in many fathoms of water near that dangerous cape.

On the way up the bay, as on some parts of the



The Old Hartford at Annapolis

Potomac, the captain spent considerable of his time reading some bound volumes of a monthly magazine that had been brought along. Of course it was necessary to glance up every few minutes to see that the boat was in the proper course, and was not in danger of colliding with fishnets or stakes. But on suitable stretches of water a little reading of this kind is wonderfully entertaining, especially if the voyager is alone.

Annapolis was sighted in the middle of the afternoon, and the boat was run up to the city for the purpose of taking on more gasoline and mailing some letters. By the way, there is a "post-office" on board Bunny; that is to say, a corner of one of the cabinets is set apart for outgoing mail. The captain's wife had thoughtfully provided him with a lot of stamped envelopes, each with a double sheet of paper folded inside it. Whenever a good opportunity presented itself he would write to his family, at Lake George, put the letter in the "post-office," and it would be all ready for transfer to a real post-office ashore when one was reached.

A number of torpedo-boat destroyers were moored close to the imposing buildings of the United States Naval Academy. Olympia, Admiral Dewey's flagship



On the Western Shore of Chesapeake Bay



Crossing the Bay



Looking into Still Pond Creek

at Manila Bay, was anchored out in the stream, while at the dock were moored Hartford and the old Santee—the latter, especially, a familiar object to all visitors to the Academy for many years past. But next year's visitors will not see her; for recently her bottom gave way, as the result of age, and it is understood she is to be sold for old junk.

After procuring gasoline and mailing the letters, Bunny's bow was pointed out of the Severn and up the bay, the Magothy River being the objective point for the night. We were followed out by a large cabin power boat, on the bow of which a young man with a crab-net was kept busy scooping in the crustaceans from the surface of the water.

The Magothy is a fine body of water, and is said to be very picturesque; but there was not time to explore it. Slipping in between the buoys, we dropped anchor just beyond a little creek that indents the Southern shore. There was a beautiful sunset, with especially fine pink clouds in the East; and after dark the electric lights of Baltimore lighted up the sky in the Northwest. As the Easterly wind of the morning started to blow again after dark, the boat tossed and rolled considerably for a while; then the breeze moderated, and quite a comfortable night was spent at anchor.



In the First Lock of the Chesapeake and Delaware Canal



One of the Lagoons on Chesapeake and Delaware Cana

Tuesday, August 22d.—When the launch emerged from the Magothy the surface of the water presented a very different aspect from that of the previous afternoon. Then it was glassy, and shimmered like watered silk. Now a bracing breeze blew across the bay, giving motion to vessels whose sails hung limp and lifeless last night, and blowing all the cobwebs out of the skipper's brain. How the water sparkled in the morning sunlight! How green were the trees on the Maryland hills—how blue the water between the boat and the farms that dotted the shore!

The launch was headed diagonally across the bay, for from now on the Eastern shore would have to be followed to the entrance of the Chesapeake and Delaware Canal. The tender, with two full gasoline cans in it, was yanked along pretty vigorously, but gave no trouble. As we passed the lighthouse that stands on a shoal near the Northern end of Kent Island the camera was snapped at it. In due season the Eastern shore was reached, and was followed until the middle of the afternoon, when we turned into Still Pond Harbor for a short time in order to explore it.

This is a well-known resort of yachtsmen bound up or down the bay, but Bunny had never before visited it. It is hard to believe that the outer harbor has a couple of tributaries, for they are so well con-



At the Boundary of Maryland and Delaware



Waiting for the Tug

cealed that until you are right up to them they cannot be located. But the crew of a schooner anchored here, loading tomatoes, gave the skipper directions, and soon the launch was anchored near Churn Creek. As this was rather gloomy and forbidding in appearance, we ran down to Still Pond Creek; and after taking soundings in the tender the launch was run through the narrow mouth of the creek and up close to shore just inside the sheltered body of water. Then, after taking some photographs, the captain had a most delightful swim. Regretting his inability to thoroughly explore the creek or pond in the tender, he then climbed aboard, started the old reliable engine, and resumed the voyage up the Chesapeake.

About five o'clock the railroad bridges spanning the Susquehanna River were sighted, whereupon the captain waved his cap and gave three cheers; for this marked the end of navigation on the great Chesapeake. Soon the launch was running up the Elk River—a splendid estuary, bordered with fertile farms and the greenest of trees. The afternoon sun, casting long shadows over the grass, made many beautiful effects of light and shade; but their charm depended upon color rather than outline, so photographs would not do them justice.

(To be Continued)



Minnesota at League Island Navy Yard

It was determined to spend the night at Herring Island, just outside Back Creek; and here anchor was dropped about six o'clock. Some goats and sheep grazed on the wooded island, and a few tents were visible—perhaps those of gypsies, perhaps the abode of campers. There is quite a stylish-looking settlement on the mainland here. Automobiles ran up and departed, luxurious power boats came and went, and a number of young people were seen on the piers and around the cottages. The captain of Bunny, being an outsider, contented himself with admiring the scenery, scrubbing the paint of the launch, cooking supper, and tumbling into bed at an early hour.

Wednesday, August 23d.—It was after nine o'clock when the anchor was weighed; and about an hour later, in company with a raft of logs, the launch entered the Chesapeake and Delaware Canal. A little farther on we came to the boundary line of Maryland and Delaware, and of course the photographer of the party had to take a picture. Then on we went, at slow speed, between high banks covered with a profusion of foliage, ferns, and wild flowers. The humming of bees and other insects, the singing of birds, and the heavy scent of flowers, made the place seem more like a conservatory than a commercial waterway.



The Sun Disappears for the Day



Early Morning on the Delaware and Raritan Canal

AN OCEAN-GOING CRUISER

C. Andrade, Jr.

"HANCOCK CO., GA.—A tornado on March 20, 1875, showed evidences of wind velocities up to 370 miles per hour or a pressure of 548 pounds per square foot."

It came to me in a long official envelope under the frank of the United States Weather Bureau, and with it came a letter couched in the courteous and exact language of the Departments of the Federal Government, explaining that the matter of wind pressure was only "approximate." Uncle Sam's idea of "approximate" accuracy may be illustrated by the work of the Coast Survey, which will prove up a triangulation of 50 miles or so with an error of a fraction of an inch.

Now, gentle reader, do you really gather the import of that wind velocity and pressure?

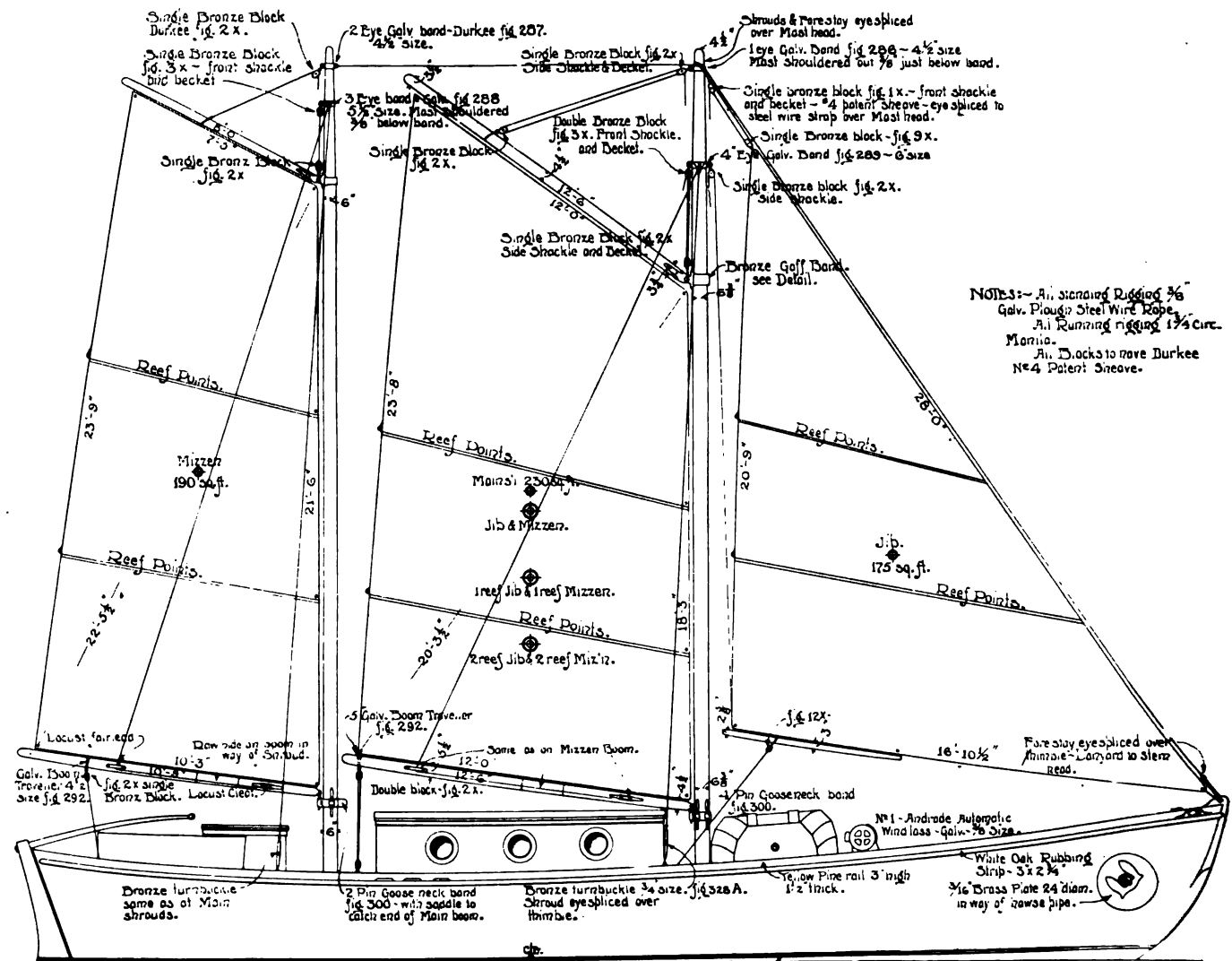
It means that if you were caught out in that same tornado, your body would meet a pressure of some

4,500 lb, and you would be whirled aloft like a feather.

Or suppose our little cruiser here, by evil chance, should encounter the like out among the West Indies or in the mid-Pacific, or such other place, where the Wind Gods from time to time unloose their strength. If she had sea room to leeward—hundreds of miles of it, perhaps—barely perhaps—she might run it out, with a hawser towing astern and tiller lashed amidship and no rag of sail showing and her hatches battened down; but if there lay a shore under her lee, near or far, her destruction would be as certain as the darkness that follows the day.

Anchor? Just stop a while and do some figuring.

If you anchor, you swing. And if our cruiser swung broadside to that wind, her topsides and spars would present an exposed area of about 75 square feet, and the wind pressure thereon would be over 20 tons,



Sail Plan of Forty-Two-Foot Ocean-Going Cruiser Designed by C. Andrade, Jr.

between two and three times the weight of the entire boat. Such a strain would snap two chains of $\frac{1}{2}$ -inch steel like packthread.

Disregarding figures, look at the things that have actually befallen in such case.

Going no farther afield than Greenwich Harbor, Connecticut, a few Summers ago, I recall a small schooner yacht that was anchored off the Indian Harbor Y. C. with her sail covers on, and everything shipshape and Bristol fashion. A wicked squall struck in out of the Nor'west, and blowing offshore, in perfectly smooth water, hove the schooner so far down under her bare poles that she filled by the hatches and sank at her anchor.

There are numerous well authenticated instances of full-powered steamers with all their anchors down and engines working full speed ahead, that have been driven stern-to clear up on the beach by the typhoons of the China Seas.

And, therefore, when any man says he has evolved a boat which will weather any gale that ever blew, let him go his ways in peace; but be thoroughly well advised that he speaks the thing which is not.

Still, where boats may come and go on their law-ful occasions on 4 feet 6 inches of draught, our little cruiser can go too. If the Almighty stays His hand, she will live as long as the rest of them—in fact, much longer than most.

Here is a boat some 42 feet long over all, with a displacement of under 18,000 lb; and allowing the admiralty ration of 3 quarts of water and 3 pounds of solid food per day to her crew of one, she figures out in this wise: You can cast off your lines on New Year's Day, sail such thousands of miles as the winds will grant, and never set foot on land nor take supplies, nor even speak a sail if you go far enough out of the beaten track, until next New Year's Day. In other words, this little boat will carry a full year's water, food, supplies and spare gear for one man. If you are gregarious, she will accommodate six of you for two months in like fashion.

If you are of those who insist on being in a certain place at a certain time, you can put an engine in her—but by your leave, I will omit the engine for my own use in long voyages.

Now, there are certain particular things which I have always advocated in an ocean cruiser—and the first of them is an inboard sail plan; and then follow other matters such as a whaleboat stern; a bow and stern sharp on the water, but with a heavy flare on deck; a smart sheer; a long, straight, raking keel; a ketch rig; and stockless anchors that pull into the hawsepipes. I have gone quite at length into some of these matters in the "Spray" article (THE RUDDER of June, 1909) and in the "Coastwise Cruiser" article (THE RUDDER of April, 1912).

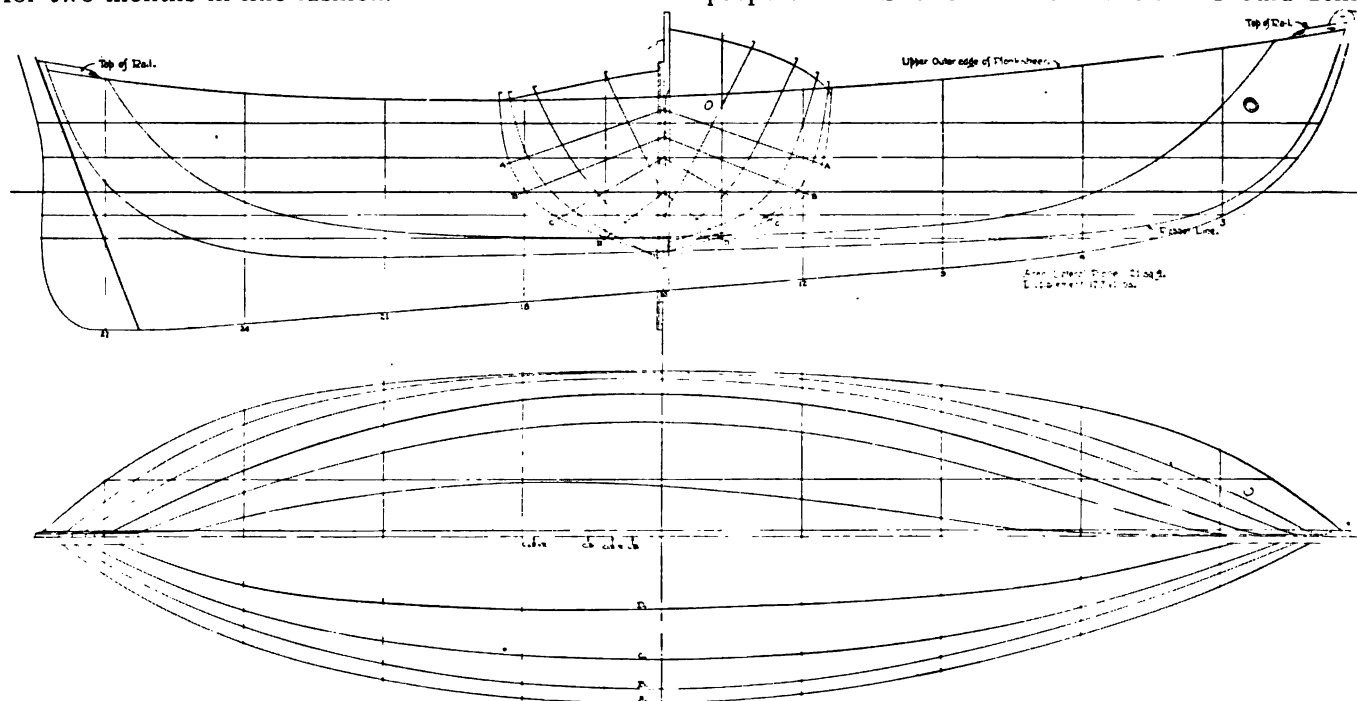
Captain Slocum's Spray and the Block Island boat (THE RUDDER, April, 1912) both show the long, straight, raking keel. Mr. Thompson states specifically that the Block Island boat was the best sea-boat he ever saw and that she would sail herself just as accurately as Spray. There can be no question or room for discussion on this point. The straight, raking keel is the only thing for ocean work.

The inboard sail plan I regard as absolutely essential. A bowsprit has no place on a small boat that must keep the open. The English cutters, luggers and yawls all have bowsprits that ship inboard. The Block Island boat has no bowsprit. Slocum mentions that when he reached Buenos Aires, "I reduced the length of the bowsprit by about 5 feet, and even then I found it reaching far enough from home; and more than once, when on the end of it reefing the jib, I regretted that I had not shortened it another foot."

Possibly that is how he met his doom on his last cruise in the late Fall of 1908.

Of course, an inboard sail plan is out of the question with a boat of Spray's beam, as she had such enormous power of hull that it took a mighty sail plan to drive it.

In rig, our cruiser is a ketch of somewhat unusual proportions. She is not a schooner. I should define



Lines of Forty-Two-Foot Ocean-Going Cruiser

a two-masted schooner as a fore-and-aft rigged boat with headsails and having a sail of larger area on the mainmast than on the foremast. As soon as the area of the sail on the forward mast becomes larger than the area of the sail on the after mast the rig ceases to be a schooner rig. Some people might call our boat a pilot rig (that is what they used to call the Block Island boats in the Nantucket waters twenty-five years ago), but the term pilot or Block Island rig is applied more accurately to boats without any headsails at all—the true pilot rig consisting simply of two sails, a large squareheaded lug foresail, and a very high, narrow mainsail, neither mast having any shrouds. Next in sequence in the series of two-masted rigs comes a ketch, and in the ketch rig the forward mast is called the mainmast, and the after mast is called the mizzen. The ketch rig is a fore-and-aft two-masted rig with headsails, and the mizzen smaller than the mainsail, and the mizzen mast stepped forward of the rudder-post; if the mizzen is stepped aft of the rudder-post, the rig becomes a yawl. I suppose most of you know all this but for the benefit of those who don't, I make the digression. So please note that this little boat is not a schooner, but a ketch.

The high narrow rig is, of course, the classic thing for ocean work. The reasons in support of it are multifarious. First, the short gaffs save weight aloft. Second, the short booms avoid all possibility of tripping on a broad reach or run in rough water. Third, the short booms also make reefing a very short job. Fourth, the high sails hold the boat from rolling to windward when she drops into the great wave hollows after an ocean storm. Fifth, the high narrow sail plan permits the gaffs to swing in and outboard and thus keep the sails drawing at all times, whereas a low, long boom rig will flap and spill a good deal in rough water with a light wind.

Looking at the sail plan with attention, you will notice a peculiar feature of it, and that is, that the jib and mizzen together balance on exactly the same vertical line as the mainsail; and this idea of perfect balance is carried out even to the reefing bands—for you will observe that when the mizzen and jib each have one reef, they still balance on exactly the same vertical line; and when the jib and mizzen each have two reefs, they still balance on the same line. The mainsail itself is so proportioned that with one or two reefs it maintains exactly the same balance as the full sail.

I have no knowledge of any other sail plan containing these peculiarities. It took a good many hours of trial and error before I got it, but here it is.

The result of this perfect sail balance is very important. For example, you can be running along under full sail and if a squall makes up, you can hold on to the very last minute, then let your jib and mizzen go by the run and proceed under your mainsail without any change whatever in your helm. If the squall is not particularly heavy you can proceed under jib and mizzen alone. Or you can reef her down to nothing but a close-reefed mainsail, and still hold a perfect balance.

The following is a list of the sail combinations she can hold, and still maintain her balance:

1. Full sail.
2. Full jib and mizzen, one-reef mainsail.

3. Full jib and mizzen, two-reef mainsail.
4. Full jib and mizzen only.
5. One-reef jib, one-reef mizzen, full mainsail.
6. One-reef jib, one-reef mizzen, one-reef mainsail.
7. One-reef jib, one-reef mizzen, two-reef mainsail.
8. One-reef jib, one-reef mizzen only.
9. Two-reef jib, two-reef mizzen, full mainsail.
10. Two-reef jib, two-reef mizzen, one-reef mainsail.
11. Two-reef jib, two-reef mizzen, two-reef mainsail.
12. Two-reef jib, two-reef mizzen only.
13. Full mainsail only.
14. One-reef mainsail only.
15. Two-reef mainsail only.

That is to say, you have at your command fifteen different sail combinations, all in perfect balance. This is a tremendous advantage when cruising (or racing either for that matter), and particularly when cruising single-handed.

Few people realize the time and distance that you lose when you heave to for a reef; it means a mile or two miles in distance every time; the great thing in cruising as in racing is to keep going every minute.

You will notice that the spars are very well stayed. The standing rigging is simple, but it will do the work. Of course, runner backstays are out of the question on a single-hander, built for such rugged work as this boat, so I have given both sets of shrouds a good lead aft.

Now a few words, by way of comparison, on the sail plan of the Block Island boat shown in THE RUDDER of April, 1912.

Twenty-five years ago at Nantucket there were two such boats, and I knew them both intimately and well. They used to call them pilot-boats. One was called Naiad Queen, and above water she was the replica of the boat described by Mr. Thompson (lap-streak planking and all), except that she had a much heavier flare at the bow than the boat shown by Mr. Thompson. The other boat was Clara. She, too, was exactly like the Block Island boat, except that she had a square, chopped-off stern. It was a tradition of the island at that time that Clara in ancient days, before the steamships ran, had done ferry service between Nantucket and the mainland and that a man named Dunham, sometimes single-handed, and sometimes with the aid of a boy, had run her regularly, in season and out of season, blow high or blow low.

The rig on Clara and on Naiad Queen was absolutely identical with the Block Island boat, with two minor differences. Firstly, their mainsail laced to the boom instead of being set standing. Second, their single halyard rove a trifle differently from that shown on the Block Island boat: the Block Island boat as published shows a single block with becket at the masthead, and a single block at the middle of the gaff, whereas Clara and Naiad Queen rove their halyard as follows: The standing part of the halyard was made fast near the peak of the gaff, then led through one sheave of a double block at the masthead, then down to a single block at the throat of the gaff, then up to the second sheave of the double block at the masthead and then down to the deck.

But for all practical purposes, the three boats had identically the same sail plan—no shrouds or stays, lug foresail with sister blocks sheeting aft of the mainmast, short stumpy gaffs, foremast right up in the eyes of the boat.

And from personal observation and experience, I can subscribe to every word that Mr. Thompson has said regarding their magical ease in a sea, their unrivaled ability and their weatherliness.

But there were other things. Clara, when I first made her acquaintance, was reputed to be thirty-one years old, and in stating her age, it was always added that in those thirty-one years she had had exactly thirty-one different masts. The reason they did not stay those masts was threefold. In the first place, shrouds and stays offer a large wind resistance when turning out to windward. In the second place, the absence of shrouds and stays permitted the masts to work like whips in a seaway, and largely contributed to the indescribable ease of the boat's motion in lumpy water. In the third place that same give and swing of the masts undoubtedly made the boat faster. The classic instance of that is the old practice of sawing the frames of the blockade runners during the Civil War. The more a boat works, aloof or aloft, the faster she seems to go.

The same thing holds good in catamarans. The first voyagers to Samoa, Fiji and the other archipelagos of the Pacific brought back wonderful stories of the flying proas, outrigger canoes and catamarans that sailed at speeds far beyond anything that had yet been seen on the face of the waters. White men tried to imitate them. They produced contrivances similar to the life-rafts common to ocean steamers, and under sail these contrivances proceeded somewhat more slowly than ordinary normal sailboats. So the white men finally gave it up as a bad job. At length in the year 1876 one Herreshoff, hailing from Bristol, R. I., crossed the starting line of the Centennial Regatta sitting at the helm of the little catamaran *Amaryllis*, and he sailed through the fleet like a greyhound through a drove of cows.

It was subsequently learned that he had put universal joints between the two hulls and the framework which connected them. By patient inquiry he had ascertained that the Fiji islanders connected their two hulls with flexible bamboo poles, whereas the white men had been bracing their two hulls rigidly together. That was the thing that made the difference.

You will see another example of this law in the surf-boats used by the fishermen on the New Jersey beaches. These boats have a centerboard trunk which at one or both ends comes up against a thwart. In the boats which I have observed, they never fasten the trunk to the thwart, but always let them work.

The same thing on a huge scale appears in all the later Atlantic liners. The superstructures of these ships are all cut right athwartships into two or more sections. The joints are made to telescope or lap, and on the topmost deck in a heavy gale will show a very considerable play.

And that is one of the reasons why the Block Island men did not stay their masts.

But can you take the risk of dismasting on an ocean cruiser? The one dread of the small boat in mid-ocean is dismasting, and the man that doesn't stay his masts is bound to lose them. So I have stayed mine.

Another thing is that lug foresail shown on the Block Island boat. Clara and Naiad Queen both had the same thing. And they were unqualifiedly and un-

reservedly a nuisance. Beating into harbor, it was trim sheets every time you swung the tiller. If it was blowing hard, somebody stood a pretty fair chance of getting a crack on the head from one of the sheet blocks as she stood about; and worse than that, there was always the theoretical possibility of being out in a blow, and having a sudden heave of the sea coincident with a shift of wind throw you aback. Glass port lights on the cabin of such a boat would be out of the question, as the sheet blocks would smash them a dozen times a day.

Now, let us return to the design before us.

The two things that I had in mind in designing this boat were seaworthiness and *handiness*. Spray was seaworthy, but she wasn't handy. It was downright hard work to hoist or reef her sails. This matter of handiness will appear in a number of other things connected with the boat.

For example, the matter of ground tackle.

You will observe, I have given my boat a couple of stockless anchors, pulling into the hawsepipe, 80 fathoms of $\frac{3}{8}$ -inch chain, and an Andrade automatic windlass (for full detailed description see *The Windlass Book*, C. D. Durkee & Co.). Briefly you heave, trip and brake the chain simply by moving the handle bar as shown in the construction elevation. I specify two 60-lb stockless anchors, and one spare 75-lb stockless anchor.

The key to the whole ground tackle question is this: Use chain instead of rope, and then use a windlass that will really handle the chain—heave it in, let it run or check it just as you want—and then use stockless anchors pulling into the hawsepipes. Stockless anchors housing in the hawsepipes would have gone all right on *Spray*, but poor old *Slocum* didn't have money enough for an adequate equipment, and the result was much needless backache. He tells feelingly of one night in the Strait of Magellan when he dragged his anchor out into deep water where it found no bottom. *Slocum* says: "I had to man the windlass and heave up the anchor with 50 fathoms of cable hanging up and down in deep water. On the sloop's crab-windlass I worked the rest of the night. . . . It was daybreak when the anchor was at the hawse."

I think I am safe in saying that more accidents happen to small boats while getting their anchors home than at any other time. There probably is not a man who reads these lines who cannot recall some anxious or possibly disastrous experience of the kind. You anchor and turn in with everything quiet and serene. When you wake up the next morning, it is blowing great guns, and in all probability you have a lee shore close aboard. The chances are also excellent, that in your immediate vicinity are anchored a choice assortment of variegated Damn Fools (it ought to be spelled all in capitals to give adequate expression to the facts) who, shortly after daylight, will commence a series of evolutions which, in military parlance, will "render your position untenable." If they don't drag down on top of you, they will to a certainty and beyond peradventure endeavor to get underway and with equal certainty, and with loud and profuse apologies, they will run you down, ram you, scrape alongside, carry away your bowsprit or your main-boom, or do one or the other of the thousand and one totally idiotic tricks which belong to

the nautically untutored. Now your own ground tackle may be holding like a rock, and you may be riding like a duck, but the activities in your neighborhood compel you to get underway.

And that's where some of the old hands even sometimes come to grief—forced to get underway in a crowded anchorage in a gale of wind because of the purblind stupidity of some idiot in another boat.

The worst possible ground tackle, and the one most in use at the present time, is a rope anchor rode, with a sliding stock anchor at the end of it, and a dinkey crab-windlass, such as Slocum spent the night on, heaving in that 50 fathoms of cable. Rope chafes on your bobstay if you have one, or on your cutwater if you have no bobstay; it chafes on the rocks on the bottom; it not only chafes there, but in times of stress it parts; in a gale it stands taut as a bowstring in a straight line from your bow chocks to the anchor, and trips your anchor just when the anchor is most needed to hold; and if it does not trip your anchor it will often make it drag; when you heave in rope on a crab-windlass, if you are alone, you have to heave with one hand and take in slack with the other, and at short intervals you have to stop heaving, and hold slack with one hand and coil down the rope with the other; while you are coiling down, some of it slips out again; and when you want to pay it out in a hurry, it fouls. Chain, on the other hand, never chafes; it has a heavy sag in its bight, so that the part near the anchor always lies on the bottom, and never trips your anchor, and never drags. Where you use a wildcat windlass, your chain comes in as positively as the chain over the sprocket of an automobile drive, and stows itself as it comes in; and finally with a stockless anchor pulling into the hawsepipe, you do not have to fish or cat your anchor, nor do you have to slip the stock when the anchor is aboard. It is a most significant fact that all the tramp steamers, the latest battleships, the liners, the big steel square-riggers, and even some of the larger coasting schooners are rigged in this manner, with stockless anchors pulling into the hawsepipe—many of the larger cruising power boats are following suit—and it won't be very long before even the little fellows will be doing the same.

Every waterman will admit that it involves grave danger for a single-hander (or even a full-manned boat) to get underway in a gale of wind, when he has to haul in a rope anchor rode; more danger when he has to fish and cat his anchor and slide the stock under such circumstances, and more danger yet when, by reason of stress of circumstance, he has to do all this with a lee shore at hand. The predicament is almost as bad when you have chain, but no wildcat on your windlass to engage the chain. It is only when you have chain, and a proper wildcat windlass, and use a stockless anchor, and pull it right into the hawsepipe that you can rest secure.

There is another great advantage in using chain and it is this: you can get along with much lighter anchors than you would otherwise use.

That is really the chief curse of single-handed cruising—indeed it is the only limit to the size of a single-handed boat—the weight of the anchor that one man can handle; and the lighter you keep your anchors, the easier will be your work. The reason you can use lighter anchors is because your chain it-

self is heavy. Eighty fathoms of $\frac{3}{8}$ -inch chain weighs about 860 lb. Of course, even if you pay all of that out, the great bulk of the weight lies on the bottom, and no great amount of it has to be lifted at any one time. Then again, you have half on one sheave of the windlass and half on the other, and the two sheaves work independently, so that your 860 lb is cut into two parts of 430 lb each, and even if you were caught as Slocum was, with his cable up and down and no bottom, you could heave it in on the windlass shown in a few minutes of time. (I have raised a 250-lb mushroom with one hand with ease on the identical machine specified in this cruiser.)

So don't turn down the anchors sticking out of the hawsepipes just because you think they don't look pretty.

Of course, as soon as you clear for a long voyage, you fish your anchors, get them on deck and stow them below. It is only for coastwise work where you are anchoring every two or three days, that you keep the anchors in the hawsepipes.

I guess that's about all on ground tackle. Now let us consider some of the other things in this design.

The deck layout contains some unusual features. In the first place, it gives a very large amount of deck room. Second, it has a place to carry a large, able-bodied dinghy—4 feet 6 inches by 9 feet by 18 inches deep. She is no toy—this dinghy—at a pinch she will hold seven people seated on her thwarts, and she will row equally well from the middle thwart or from either end thwart, and one or two men can row her at once. She is absolutely double-ended—and you can beach her without fear of injuring her bottom. I will back her against anything of her over-all length for general utility.

You get her aboard by hooking her onto the jib halyards. When she is on deck, turn her bottom up, and lash her to the two ring-bolts in the plank-sheers. Just two lanyards hold her. It is a neat rig all through.

Don't overlook that heavy deck beam that runs from gunwale to gunwale across the after side of the bulkhead between the cockpit and the hatch. It is a good wrinkle—means a whole lot from a structural standpoint.

You will notice that I have not put any hatch in her main cabin. There are many reasons for this: Firstly, it keeps your cabin dry at all times—no rain or spray can get into it, when open, nor is there any slide to leak and drip into your cabin space. Second, it gives you complete use of all your cabin standing room, whereas the companion steps, if you had a cabin hatch, would take up a large amount of your standing room. In the third place, it enables you to swing your main-boom low, whereas you would have to swing it much higher, if you put a slide hatch on top of the main cabin.

As this is a sailboat pure and simple, with no power whatever, I have regretfully abandoned the horizontal steering wheel shown in the design of the little coastwise cruiser, which I tried out for three years on Muskeget (THE RUDDER of February, 1909), and have returned to the age-old tiller. You can't beat it in a well-balanced boat, as this one is. The rudder is hung outboard. No chance for your rudder-port to leak with this rig. That rudder is just where it ought to be—with her deep after deadwood,

and that outboard rudder, I will guarantee she will never broach to.

The outside ballast shown is only approximate. Add to or take from the after end of it to get the exact fore-and-aft trim required. To add to the ballast, cut out some of the deadwood just above the lead and add more lead in the space left. The exact trim for the ballast is determined by the arrangement of stores and weights inside the boat. Run her for a few weeks and get her best trim by experiment, and then haul out and fix your ballast to suit. Nothing but trial will give you the best trim.

If you want to be on the safe side, you can rig a couple of life-lines 2 feet above each rail, making them fast on the shrouds.

Don't put an inch of ceiling anywhere in the boat, except maybe a few light slats in the lockers. The dangers and disadvantages of ceiling are amply demonstrated by the old Block Island boat described by Mr. Thompson.

I haven't attempted to complete the cabin arrangement plan. No two men ever agreed or ever will agree on that subject. I have simply put in

the essentials. First, a husky chain locker—well aft, right under the windlass—where it should be: not up in her eyes, to hold her head down in a sea with 1,000 lb weight of ground tackle. Second, a Shipmate range to burn wood. Third, a set of four water tanks with an aggregate capacity of 280 gallons. And note that those tanks have no openings in the bottom. If you want water you have to pump it with a little suction pump. Then you won't run the risk of losing your water supply in midocean by accidentally leaving a draw-cock open. Don't move the tanks any farther than you have to from the location shown, as they are centered to the center of buoyancy of the boat, and will therefore not affect her trim, whether they are full or empty.

The design as it stands represents my idea of a single-handed world cruiser. For the purpose, I should personally prefer her even to Spray, because she handles infinitely easier than Spray—only about half of Spray's displacement and sail area—yet with ample food, water, supplies and spare gear for a whole year.

Seaworthiness and handiness are the two fundamentals of this design.



THE NAVY'S RACE BOAT

Henry Williams, U. S. N.

A BOAT race is from its nature very thrilling. Though it is long drawn out, the spectator is made to feel vaguely the enormous efforts expended by the men of the competing crews. It differs from other sports in its lack of spectacular incident and the fact that the result is dependent on one heart-breaking, grinding effort. The fact that it is on water would lend to the idea that is the reason seafaring men love a boat race. The real reason lies in their yearning for excitement. The monotony of their lives causes them to crave just such excitement as a well-contested boat race gives.

Boat racing has been held always in high esteem by men-of-war's men, and nothing evokes so much interest and excitement among them as a boat race between the crews of their respective ships. Many thousands of dollars in naval circles often have changed hands as the result of a boat race, and the men feel in duty bound to back their own ship's crew

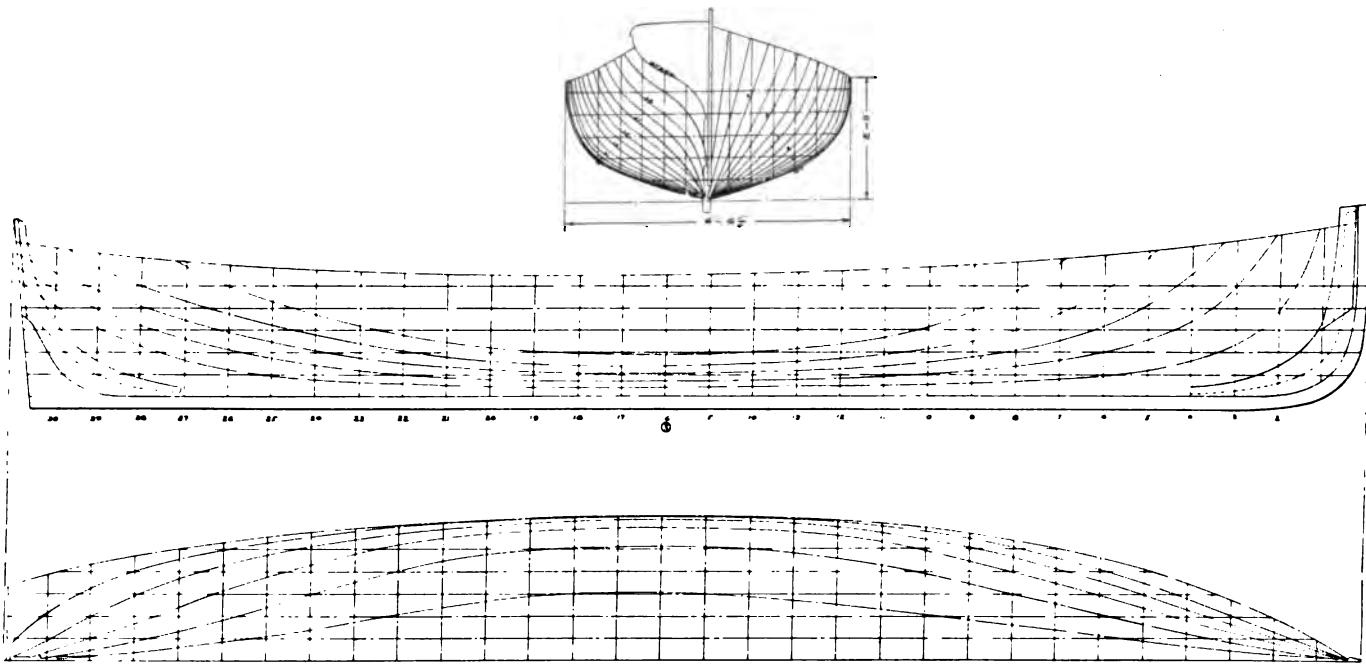
with all their money. Many stories are told of exciting contests where perhaps the championship of the fleet or even of a station was disputed. In the latter case the race is between crews of different nationalities, and there the interest becomes intense, as all persons, whether in the Navy or not, take sides to back the crew of their nation's ship.

Admiral Evans, in his book, describes a boat race in the early 70's for the championship of the Asiatic Station in which a French crew was the principal contestant of the Americans, although English boats were entered too. Every man on the American ship drew all his money, and deck buckets full of silver dollars were sent on board the French ship to be bet on the result of the race. Naturally the Americans won and they had plenty of spending money for some months, to say nothing of the excitement of winning a 6-mile race in a 14-oar service boat.

Admiral Evans tells of another race between the



A Standard Thirty-One-Foot Navy Race Boat



Lines of Thirty-One-Foot Standard Race Boat of the United States Navy

boat of his ship and that from another American ship, in which his crew was beaten, not because the men in it were inferior to the others, but because their opponents had a faster boat. Often the best crew was beaten through having a heavier boat, and for this reason the men of the various ships frequently purchased, with their own money, boats of special build for their crews to row in the races. This resulted in making of boat races competitions between the boats rather than their crews.

Having this in mind, and with a desire to encourage boat racing, over ten years ago the Bureau of Construction and Repair of the Navy Department de-

cided to issue to each first class vessel of the Navy a standard racing cutter, and caused to be prepared a design from which all of them were to be built. At first these boats were built at all of the Navy Yards, but it was found that owing to varying materials, methods of workmanship, etc., the boats built at different yards varied somewhat in details and in weight. It was decided then to concentrate their building at the New York Navy Yard for the East Coast and at the Mare Island Navy Yard for the West Coast. The finished weight is specified carefully and if upon completion it is found that the boat falls short of this, lead ballast is fitted in the keel where it cannot be removed readily.



A Victorious Navy Racing Crew Just After a Race

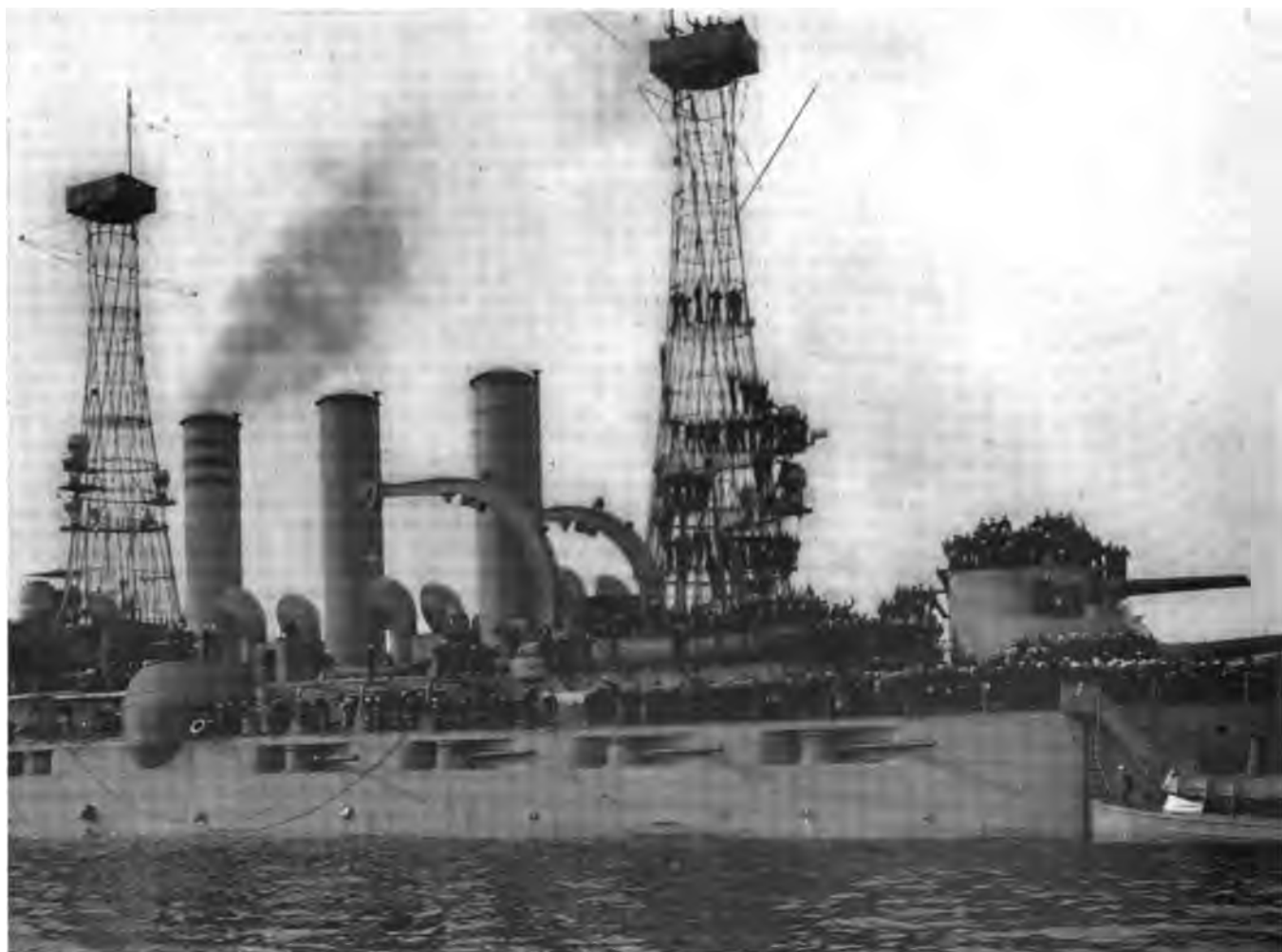
The trouble that was experienced was the tendency of the ships' crews themselves to alter the boats after receiving them. They would plane down the planking from $\frac{3}{4}$ inch to $\frac{3}{8}$ inch in thickness, plane the sternpost to a feather edge, reduce the fittings, and in every way possible attempt to reduce the weight and resistance of their boat so as to give an advantage in a race. This practice was frowned on severely, not only as being unsportsmanlike in attempting to take advantage of the opponent, but also because it reduced the strength and seaworthiness of the boat and changed its character completely. A general order was issued by the Navy Department expressly prohibiting any change whatever in the race boats as issued, and now boat races are real tests of the relative merits of the contestants. Frequently when races are held with ships of other nations, racing cutters from some of our ships are loaned to them so that they can enter on an equal basis. The cup presented by Prince Louis of Battenburg in recognition of the hospitality shown to the men of his fleet by the men of the American fleet, is held as a trophy for boat racing, and an English crew can compete for the honor of having their ship's name engraved on the cup, provided they row in a United States Navy standard race boat. This has occurred and the name of at least one English ship appears on the cup.

This standard race boat is 31 feet over all, 2 feet 9 inches in depth, and 6 feet $7\frac{1}{4}$ inches in breadth of

beam, is double-banked, (that is, two rowers on a thwart), and it pulls twelve oars. Its weight is 1,275 lb, and after completion any deficiency in weight has to be made up with lead ballast let into the keel so it cannot be removed. The materials used in construction are as follows: white oak for frames, white cedar for planking, bay wood or light mahogany for trim, white ash for stern sheets. All parts are of special design to give maximum strength with least weight, but at the same time the boat is serviceable and seaworthy and in emergency could be used for ship's work. The standard United States Navy racing boat presents a smart appearance when groomed for a race, with all superfluous paint removed and the woodwork bright and polished.

Training the race-boat crew on board a man-of-war is regarded as an important matter by the ship's company. Rowing machines are rigged on deck to teach the members to work together when, as is often the case, it is not possible to put a boat in the water. They are exercised daily by sprinting around the decks and going over the masthead. They are trained and groomed with the greatest care and every one of their shipmates takes a personal interest in the physical condition of the men of the crew.

Often racing crews are formed of officers exclusively, and there is a cup competed for annually by crews composed of officers from the ships represented by each boat.



Sailormen of the U. S. S. Georgia Welcoming Aboard a Victorious Boat Crew After a Race

DOHEMA

THE 43-foot raised deck cruiser Dohema was designed by Messrs. Bowes & Mower, of Philadelphia, for Edwin Binney, Esq., of New York, and was built by the John C. Bell Company, of Moorehead City, N. C. She was designed for cruising in Southern waters, and the owner spent the greater part of the Winter on board her cruising in Florida.

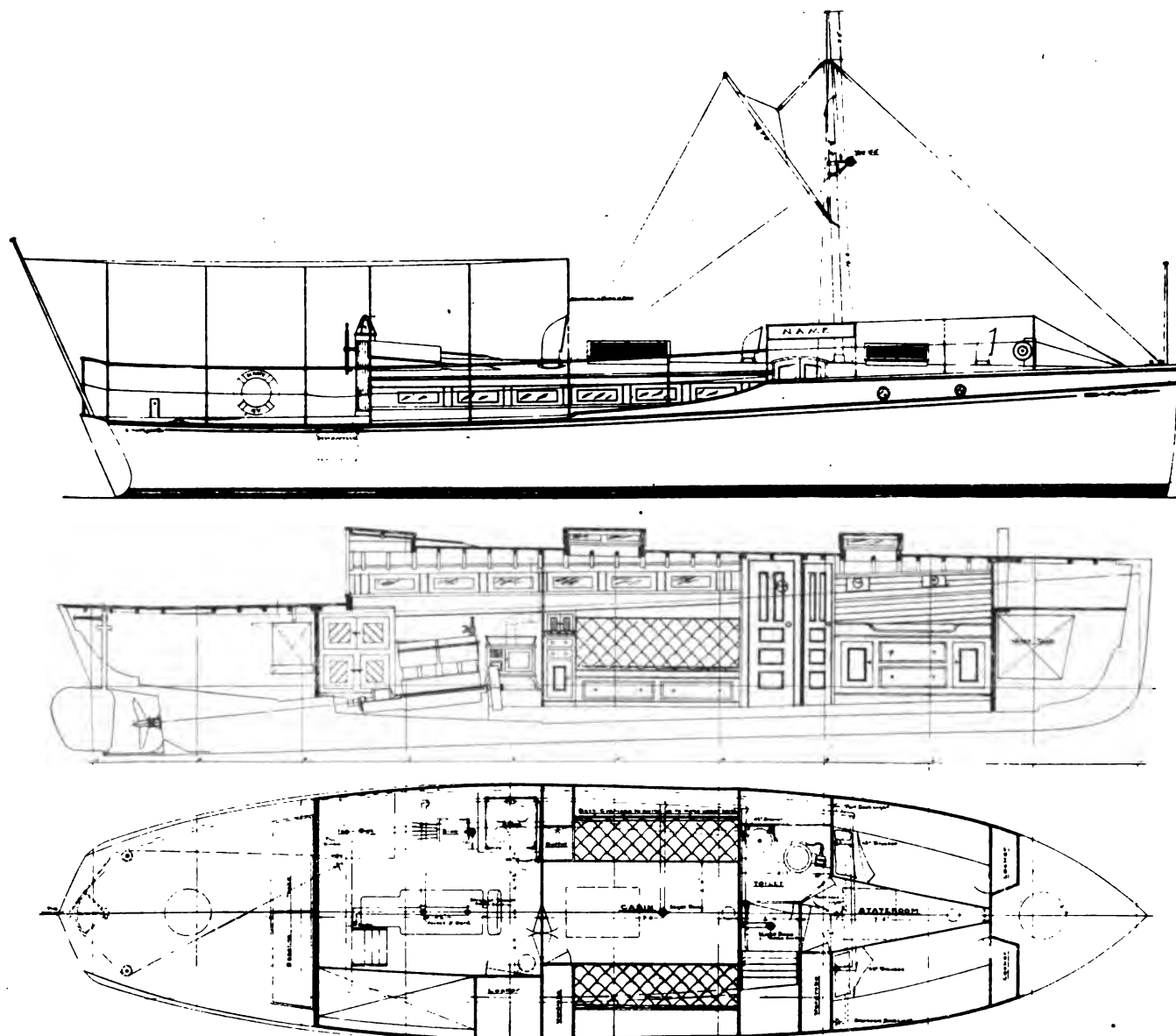
She is of a size that will appeal to a great many yachtsmen, as she is a boat that can be easily handled by one man, and can be run with one paid hand, or handled entirely by the owner, as the case may be. She is large enough and able enough to go offshore if necessary, and Dohema proved herself a fine sea-boat in some bad weather encountered on the outside run from Charleston to Southport on her return North this Spring.

Her accommodations and arrangement are such that two persons can live comfortably on board her for an entire season, four can be accommodated comfortably, and if necessary six persons can sleep in

her cabin and stateroom by using the upper berths in the main cabin. In a boat of this size and type both the first cost and the running expenses can be kept down to a moderate figure, so that such a boat is within reach of many who do not care for the expense of running a larger boat.

The arrangements below deck consist of a main cabin 7 feet 9 inches long located amidships with a clear floor space of 4 feet between transoms. The transoms are wide enough to make up as berths, and the back cushions are fitted so that they can be swung up to give two upper berths. At the after end there is a sideboard on the port side, and a clothes locker on the starboard side.

The forward companionway lands just forward of the main cabin, so that one can get on deck without passing through the engine room. At the foot of the companionway there is a door opening into the toilet room which is fitted with wash-basin and Goblet-Dolan w. c. fixture. Another door at the foot of the steps opens into the forward stateroom, which has a



Dohema, 43 Ft. O. A. Designed by Bowes & Mower, Philadelphia, Pa.

berth on either side. Under each berth there are two large drawers and two doors into the locker spaces at each end. At the after end on the starboard side there is a clothes closet 14 inches by 3 feet, and extending up to the deck. At the forward end, over the berths, there are two smaller lockers, so that ample stowage space is provided. The fresh-water tank is located on the fore peak and above it is room for ground tackle. The engine room is directly aft of the main cabin, and is 8 feet 9 inches long between bulkheads.

The engine is a Twentieth Century, with four cylinders, $6\frac{1}{2}$ by 8 inches, developing about 30-h.p., and driving the boat at a speed of over 10 miles per hour. The gasoline tanks are located under the after deck just aft of a double, watertight bulkhead, and have a total capacity of 150 gallons. The boat is lighted throughout by electricity, and has a Gray-Davis generator driven by a belt from the flywheel of the main engine.

The galley is on the port side of the engine room, and has a large ice-box, sink, stove, dish lockers, etc. On the starboard side there is a transom berth for the engineer and a large clothes locker for him.

Her after deck is 11 feet long, giving ample space for deck chairs, and there is 18 inches of deck space on each side of the cabin trunk. The small boat is carried on davits on the port side, and is swung in on top of the cabin when not in use. The deck plan shows the arrangement of skylights and ventilators, which give the circulation of air in the cabins necessary for Southern cruising.

Her dimensions are:

| | | | | |
|------------------------|----|------|----|--------|
| Length o. a..... | 43 | feet | 0 | inches |
| Length w. l..... | 41 | " | 3 | " |
| Breadth, extreme | 10 | " | 3 | " |
| Draught, extreme | 2 | " | 9 | " |
| Freeboard, bow | 5 | " | 0 | " |
| Freeboard, stern | 3 | " | 3 | " |
| Freeboard, least | 2 | " | 10 | " |

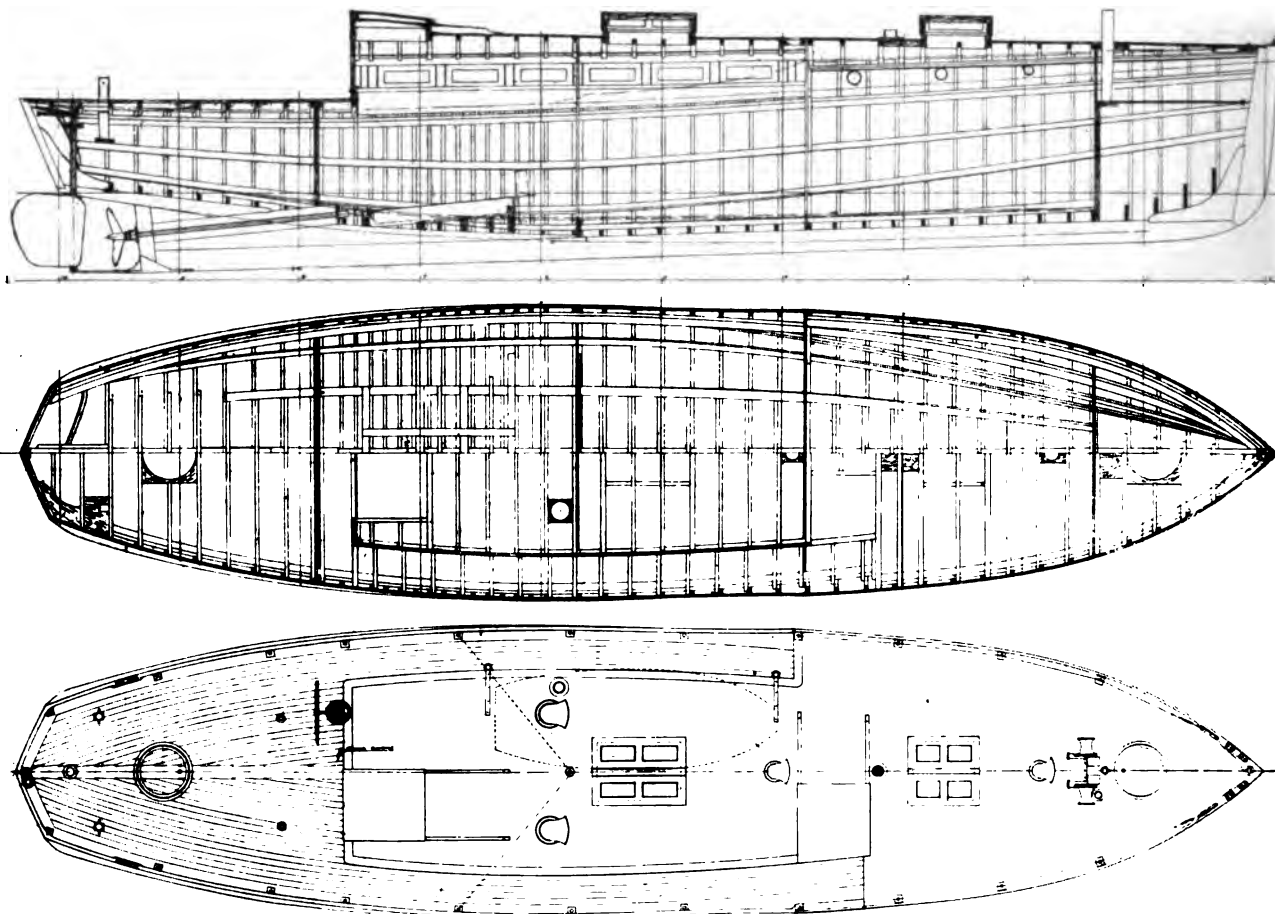
26-FOOT "V"-BOTTOM RUNABOUT

GARNET was designed for Mr. S. Downley, of Montreal, Ontario, and was built for him by Tarriante & Co., of Tetrrouville, from designs of Mr. S. Matheson, who turned out an excellent job.

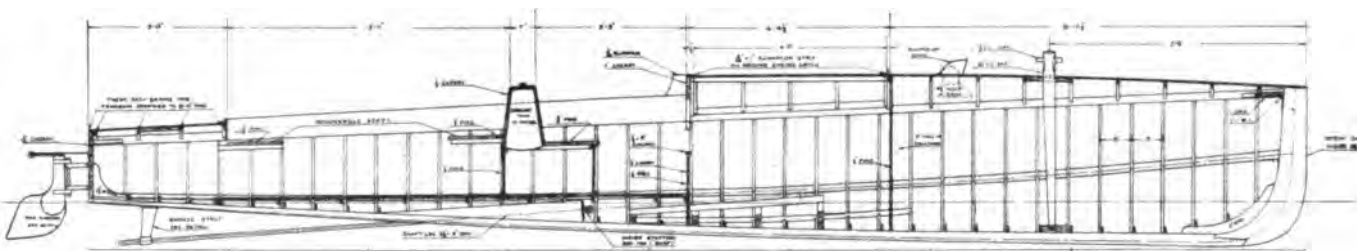
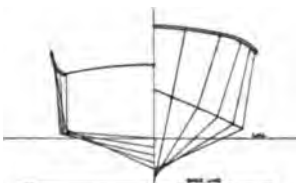
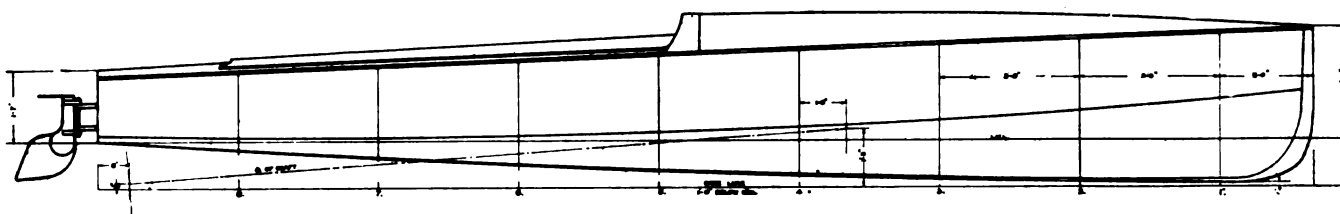
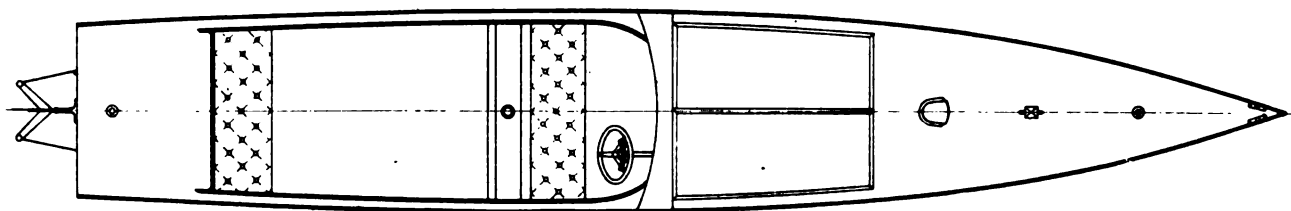
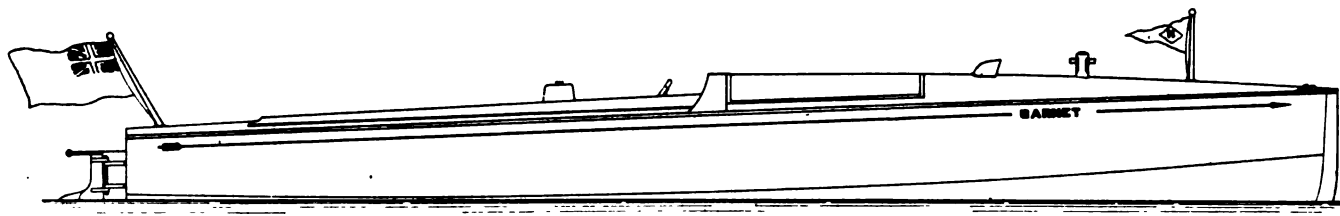
Her power plant is an 18-25-h.p. Grimm, equipped with a K-W high-tension system of ignition, mechanical oiler and rear starter. The construction is light but substantial, and is as follows: keel and chine pieces, British Columbia fir in one length; ribs $\frac{5}{8}$ by $\frac{3}{4}$ -inch rock elm; planking $\frac{1}{2}$ -inch British Columbia cedar; copper fastened; mahogany finish throughout with aluminum fittings. She has bulkhead control, and gasoline is carried in tank forming back for operator's seat. Removable seats were installed in cockpit so as to have it free for chairs.

"The boat was only in the water for about a week last Fall and got no tuning up, but it is expected that she will easily show up a speed of 20 miles this coming season." The principal dimensions are:

| | | | | |
|----------------------|----|------|----|--------|
| Length o. a..... | 26 | feet | 0 | inches |
| Breadth | 4 | " | 4 | " |
| Draught of hull..... | 0 | " | 11 | " |



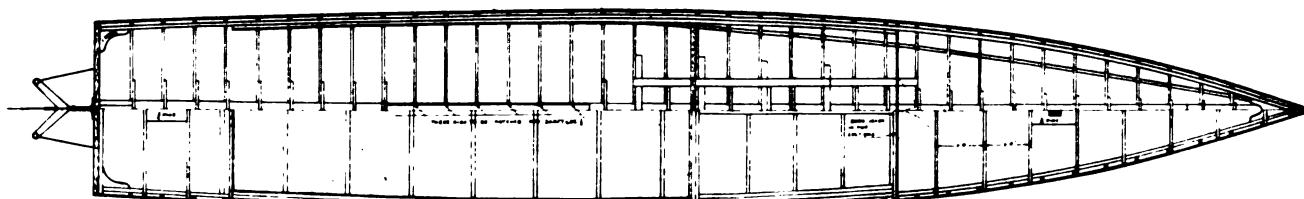
Construction and Deck Plans of Dohema



NOTE:
Planned by Mr. S. Matheson, of Montreal, Ont.
Designed by Mr. S. Matheson, of Montreal, Ont.
Date:

NOTE:
Planned by Mr. S. Matheson, of Montreal, Ont.
Designed by Mr. S. Matheson, of Montreal, Ont.
Date:

NOTE:
Planned by Mr. S. Matheson, of Montreal, Ont.
Designed by Mr. S. Matheson, of Montreal, Ont.
Date:



Twenty-Six-Foot V-Bottom Runabout. Designed by Mr. S. Matheson, of Montreal, Ont.

VAILIMA

A DESIGN of special interest to those yachtsmen who wish to take long cruises is shown in the accompanying plans, which are from the boards of J. Murray Watts. The owner's requirements called for a seagoing auxiliary yacht suitable for use on the Pacific coast and one that would be able to cruise to the Samoan Islands with safety. Advantage is taken of the fact that most of the cruising would be done in the region of the trade-winds, so that the boat is square-rigged on the foremast.

As the boat was required to pass through the doldrums, an auxiliary plant was required and a 110-h.p. San Francisco Standard is specified, to use distillate for fuel at a cost of about \$5 a ton. An attempt has been made to keep the appearance of the boat similar to that of the old-time brigs employed in the China trade, the clipper bow and stern being retained and large square ports cut in the sides. These ports will open out and provide splendid ventilation when at anchor in a tropical harbor. In the center of each square port there is shown a glass headlight for service when the ports are closed. During heavy weather, when everything would have to be battened down, the ventilation would be taken care of by a special installation of blower fans actuated by an electric engine from the electric storage battery plant.

The arrangements below decks are rather unusual, but make a layout which complies with the owner's requirements. Starting from forward there is a chain locker, then the crew's quarters with berths for six men. Then comes a large galley and messroom with a refrigerating room for keeping provisions fresh a

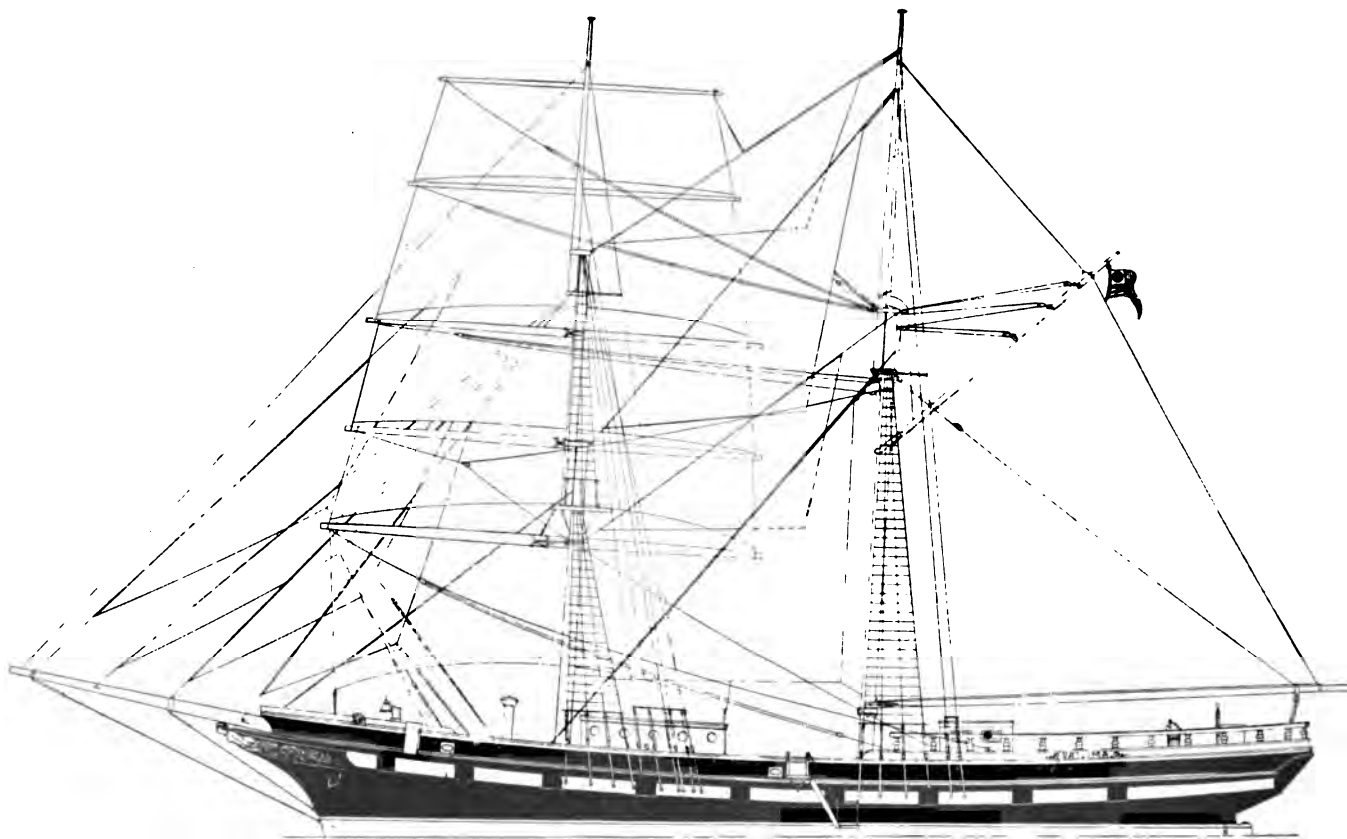
long length of time; there being a separate refrigerating plant run by an auxiliary San Francisco Standard engine.

Next to the galley is a stateroom for the cook and steward and aft of the messroom a stateroom for the captain with a desk and all necessary fittings.

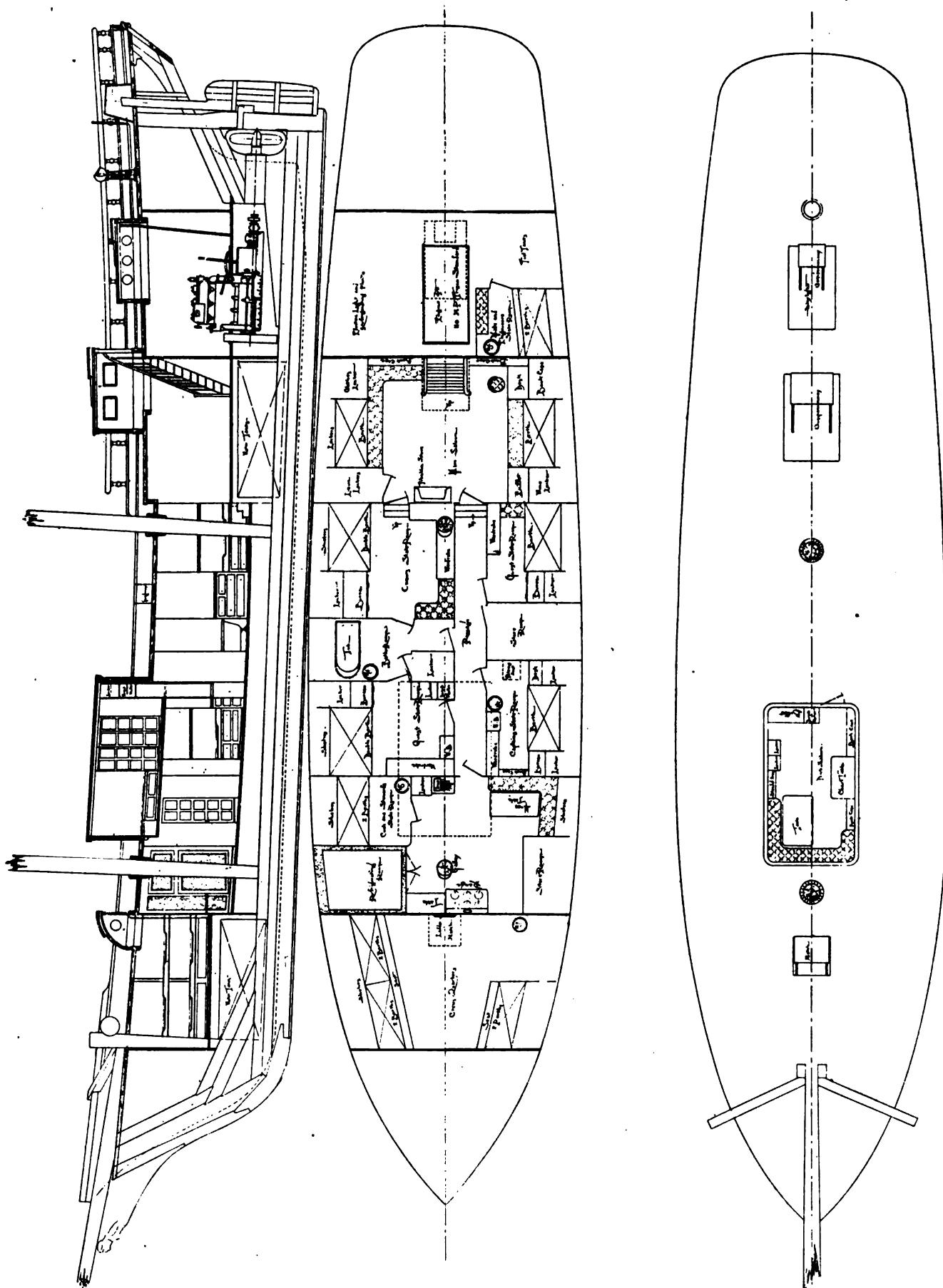
The owner has a very large stateroom for himself, and two staterooms with double berths for guests; a bathroom and a storeroom for trunks. The main saloon is aft and has accommodations for two more guests. A broad companionway leads from the main saloon up to the after deck. A sound-proof bulkhead separates the main saloon from the engine room. On one side of the engine room is a stateroom for the mate and engineer. The rest of the space is given up to an electric light and refrigerating plant.

There is a deckhouse just aft of the foremast. This deckhouse can be used for a dining saloon in hot weather and is connected to the galley by a dumb-waiter. There is a large chart table and chest for charts and instruments in this house and the outside of the house is plated with steel thick enough to stand short range musketry fire, and there is a stand of rifles and cutlasses inside. The purpose of this arrangement is to have a stronghold for defense against pirates or wreckers, who are said to form a real danger to vessels sailing some parts of the Eastern seas.

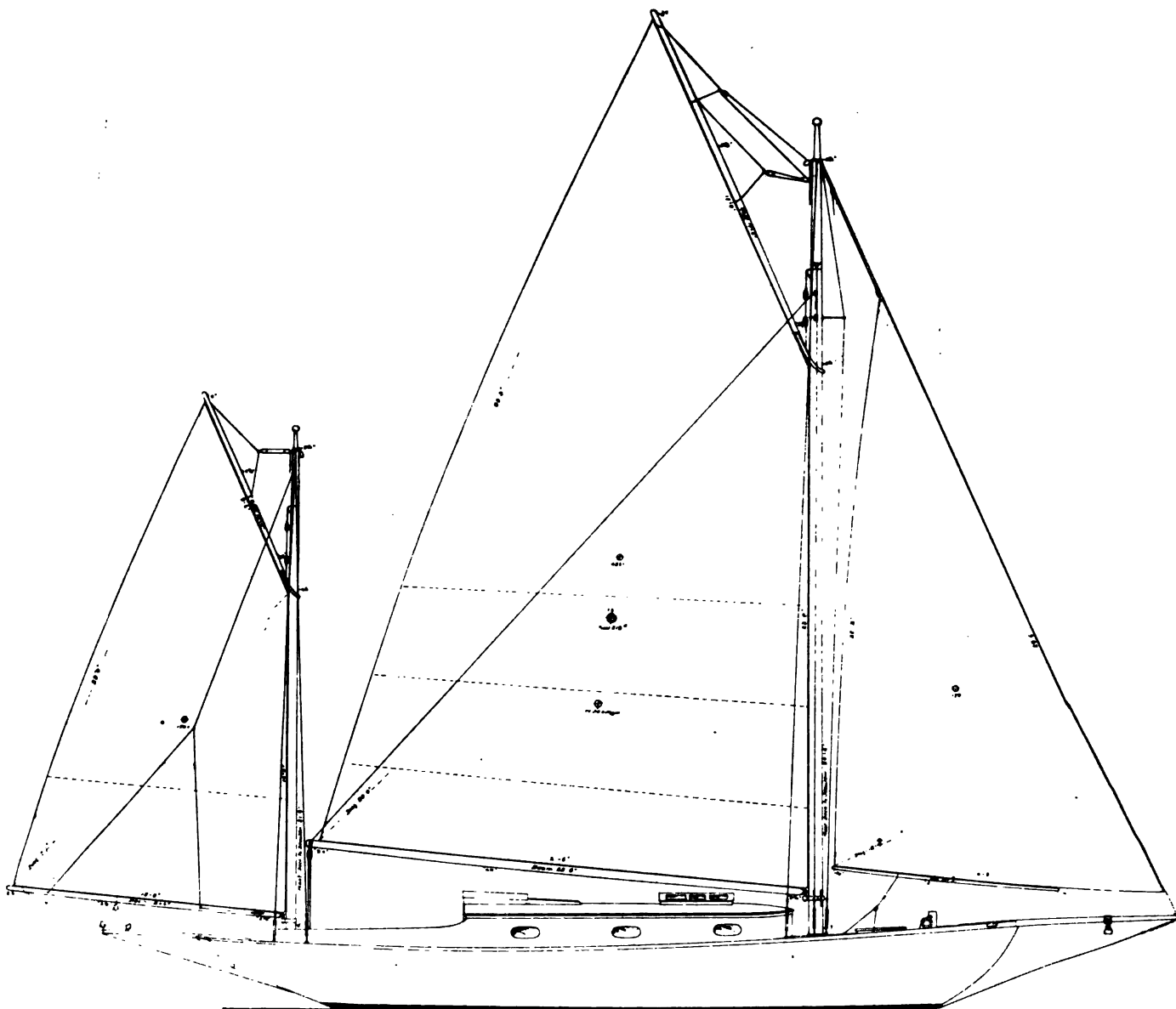
Estimates for the construction of this vessel are being prepared by a firm of commercial shipbuilders on the Pacific coast and one in Maine. The general dimensions of the boat are: 125 feet over all, 100 feet keel, 26 feet breadth and 12 feet draught.



Auxiliary Hermaphrodite Brig Vailima



Auxiliary Hermaphrodite Brig, 125 Ft. O. A. Designed by J. Murray Watts, Philadelphia, Pa.



Auxiliary Yawl, 36 Ft. O. A. Designed and Building by Mr. Fred. S. Nock, East Greenwich, R. I.

THIRTY-SIX-FT. AUXILIARY YAWL

THE accompanying plans, from the board of Mr. Frederic S. Nock, show an auxiliary yawl which is under construction at his yard for a Rhode Island yachtsman. She was designed for a good able cruiser, and no attempt was made to save weight. Her keel of oak is 12 by 12 inches amidship; frames, oak 2 by 2 inches, spaced 12 inches center to center; bilge clamps, $1\frac{1}{2}$ by 6 inches; deck clamps, $1\frac{1}{2}$ by $5\frac{1}{2}$ inches; shelf, 2 by 3 inches; planking, 1-inch yellow pine; deck beams, $1\frac{3}{4}$ by $2\frac{1}{4}$ inches; deck plank, $1\frac{1}{8}$ inch; and the balance of the boat in proportion. The cabin trunk sides are built up of three thicknesses; first there is $\frac{7}{8}$ -inch staving, the canvas on deck is turned up and fastened to the outside of this, and is then covered with a wrapper, and also a wrapper on the inside, thus making a very strong and watertight trunk. Bolted to the keel will be 4,600 lb of iron and the balance will be placed inside.

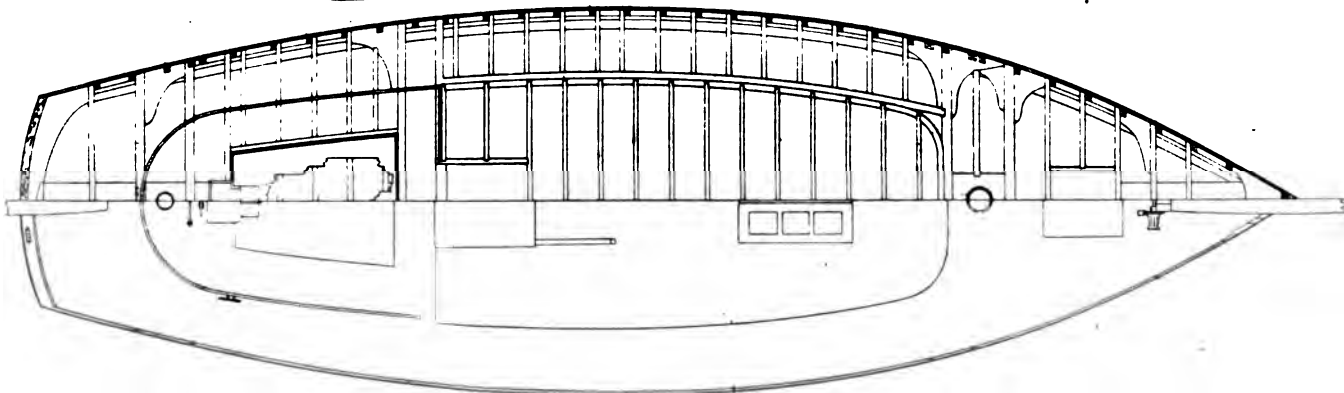
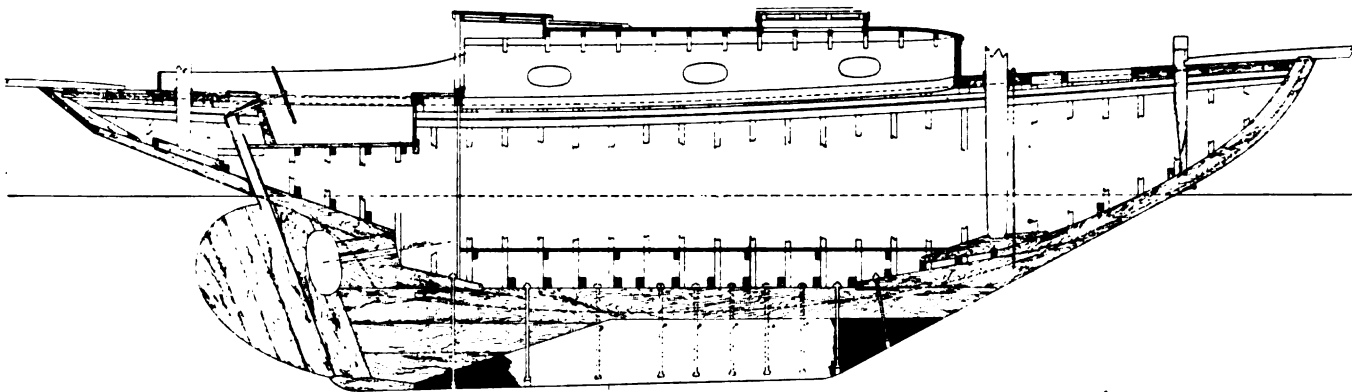
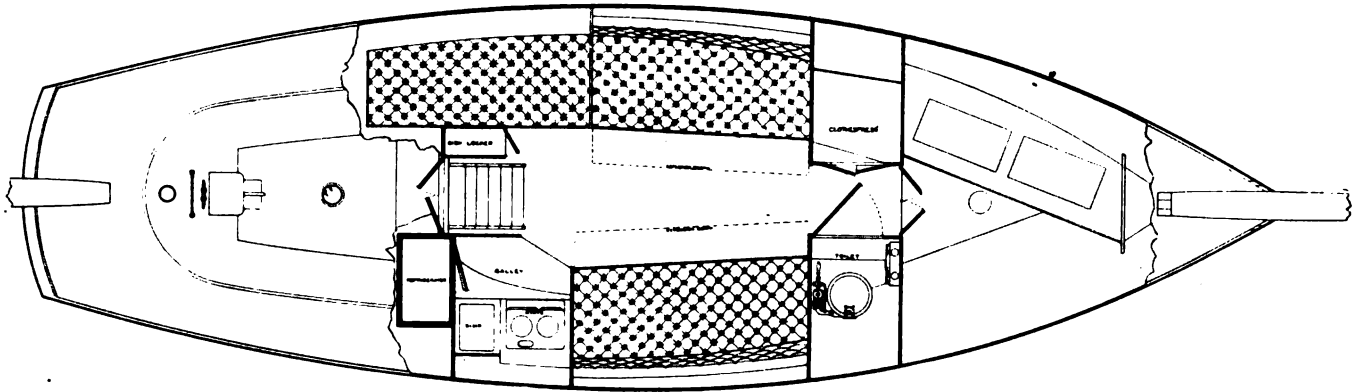
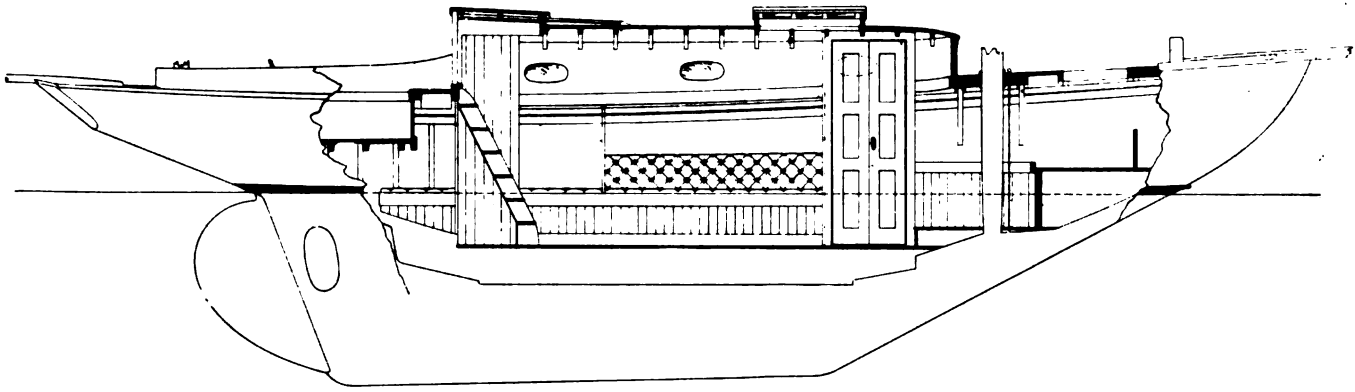
The interior arrangement is somewhat out of the ordinary, the galley being situated at the after end of saloon; but as the owner has spent a lot of time

cruising, he undoubtedly knows what arrangement would suit him best. The refrigerator is situated under the bridge deck on the starboard side and opens into the galley, which same will be equipped with a Shipmate range, sink, etc. The saloon contains two extensions and one single berth, thus affording sleeping accommodations for five persons, exclusive of a single berth in the forepeak. Forward of toilet and clothes press will be fitted a locker and also racks for dress-suit cases, etc.

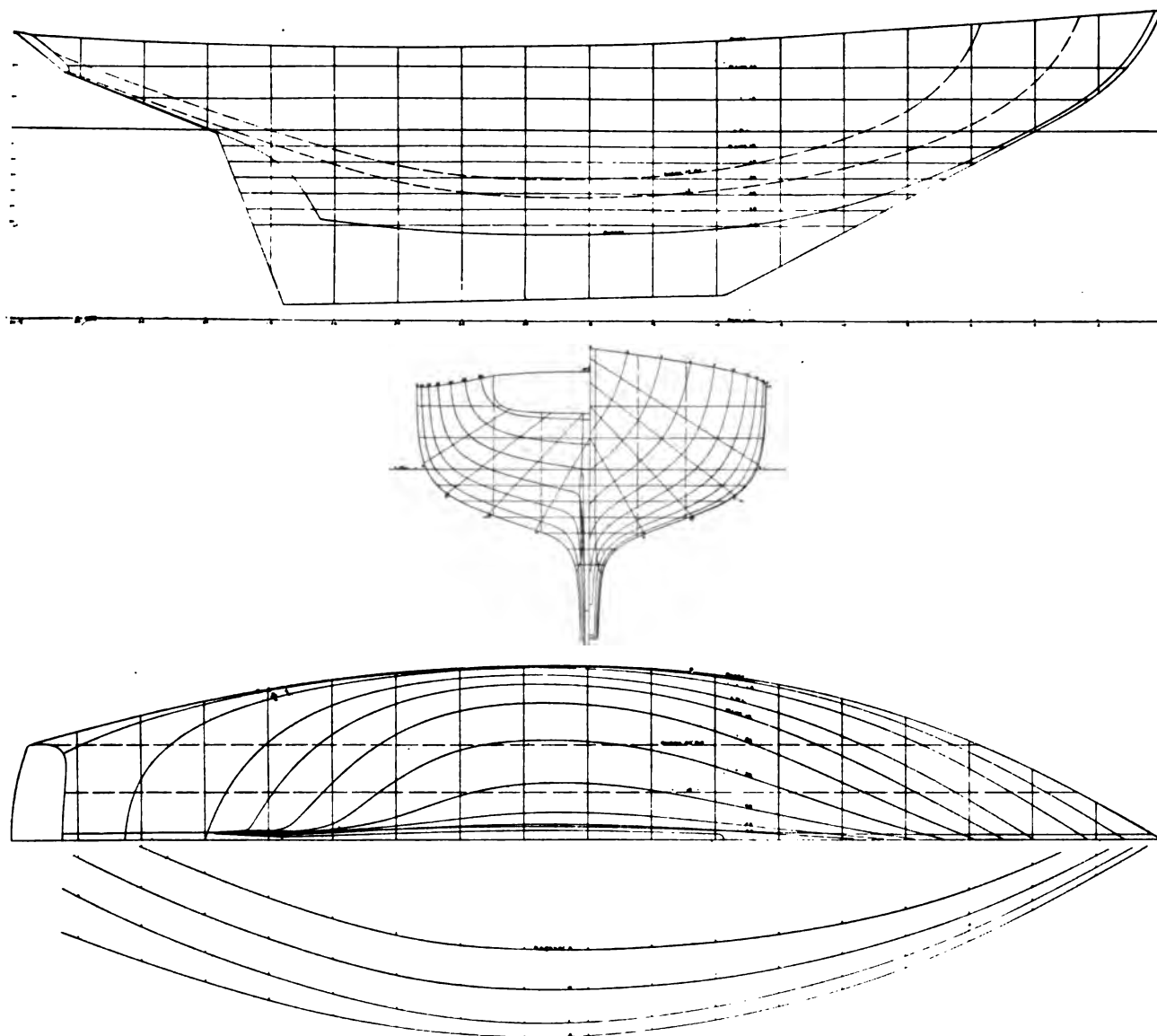
The general finish of the boat will be plain. The skylight hatches and companionway are the only pieces of bright mahogany on this craft, the interior being finished in paint.

The general dimensions are as follows:

| | |
|----------------------------|------------------|
| Length o. a..... | 36 feet 0 inches |
| Length w. l..... | 26 " 0 " |
| Breadth, extreme | 11 " 0 " |
| Draught, extreme | 5 " 6 " |
| Headroom in cabin, over .. | 6 " 0 " |
| Sail area | 819 square feet |



Accommodation Plans of Thirty-Six-Foot Auxilliary Yawl



Lines of Thirty-Six-Foot Auxiliary Yawl

FORTY-SEVEN-FT. POWER CRUISER

THE design opposite is of a 47-foot cruiser with 10 feet breadth and 3 feet 9 inches draught. She was designed by Mr. J. A. Potter, for Mr. H. M. Wesson, of Boston, Mass., who wished to have as attractive a looking boat as possible yet with the maximum amount of room below. As the owner wished to do considerable day cruising along the New England coast a small cockpit was arranged forward with seats on three sides, allowing a party of five or six persons comfortable seating accommodations, where they could enjoy the view and sea breezes to the full extent. A spray cloth is provided to fit around the front and sides when necessary.

The boat can be handled by one man as all of the engine controls are located at the steering wheel. From the cockpit a hatch leads directly below to a small vestibule with a good sized locker at the foot of the steps for oilskins, which is very convenient in bad weather.

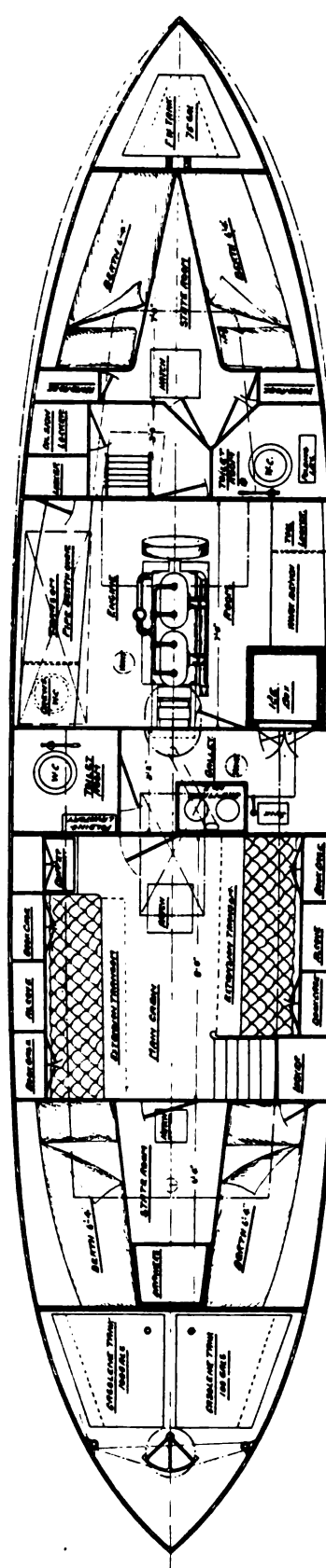
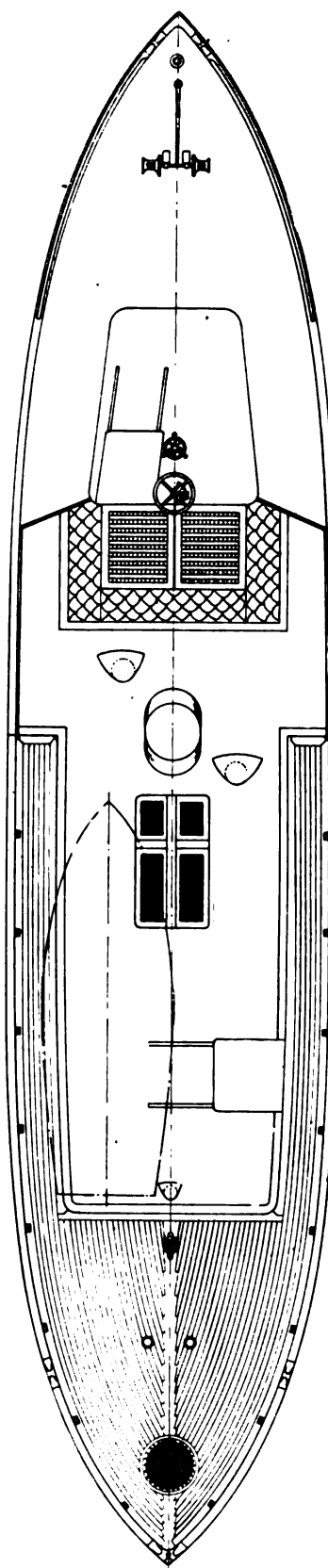
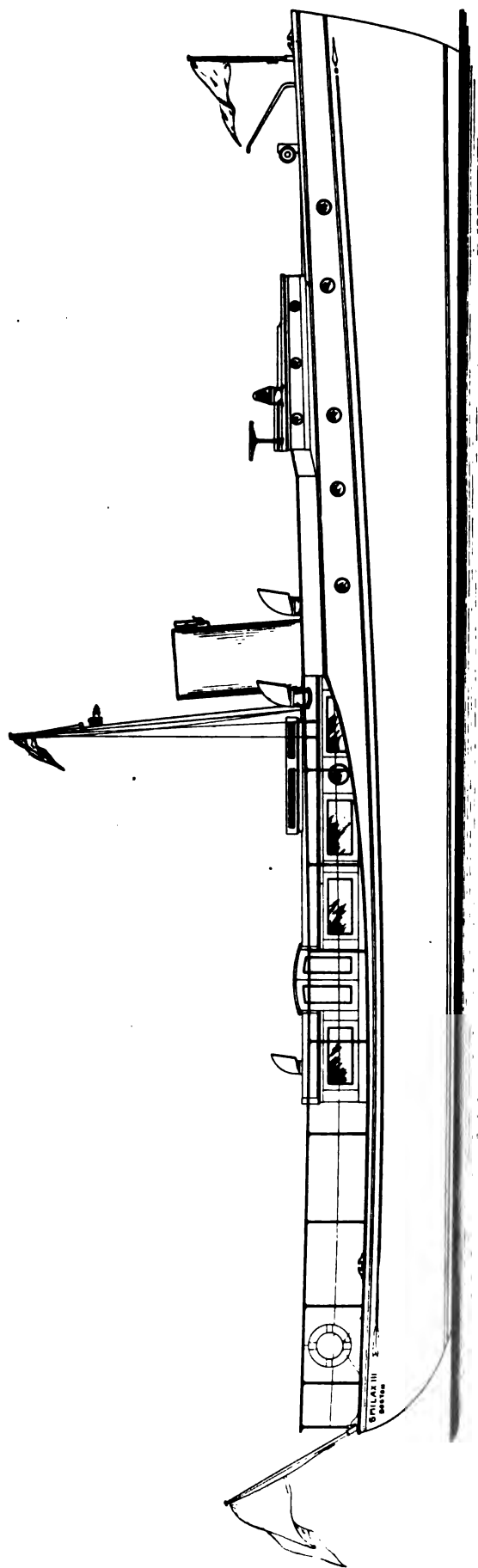
From here access is had directly to the owner's stateroom, which is fitted with two berths with full-

length wardrobes at the head of each. There is also a private toilet connecting directly with the stateroom which allows complete privacy when it is used for a ladies' cabin.

Access to the after part of the boat is through the engine room. The headroom under the cockpit is about 5 feet, so there will be very little inconvenience in passing through.

The engine room is of good size, allowing easy access to all parts of the engine. A transom with toilet under one end and pipe berth over is provided for the crew. A bench for auxiliary machinery and tool locker is on the starboard side. Good ventilation is supplied by the stack and cowl.

The main cabin is well lighted and ventilated by the large windows and skylight. Two extension transoms give extra sleeping accommodations when needed. A second stateroom leads from the cabin, full headroom is provided under the cabin trunk and good ventilation secured by a small cowl overhead and the two large windows on each side. A dresser with drawers is provided at the after end.



Forty-Seven-Foot Power Cruiser. Designed by Mr. James A. Potter, Somerville, Mass.

ZETES

THE auxiliary sloop Zetes was built last year by J. Hiltz, of Halifax, Nova Scotia, for Mr. R. A. Corbett, also of Halifax, from designs by Mr. W. J. Roue of the same city. The boat was designed to be used for afternoon sailing with sufficient accommodation below for an occasional cruise, as the owner's Summer residence is located on the Northwest arm, a narrow inlet off Halifax Harbor, where the breezes are very light from the late afternoon.

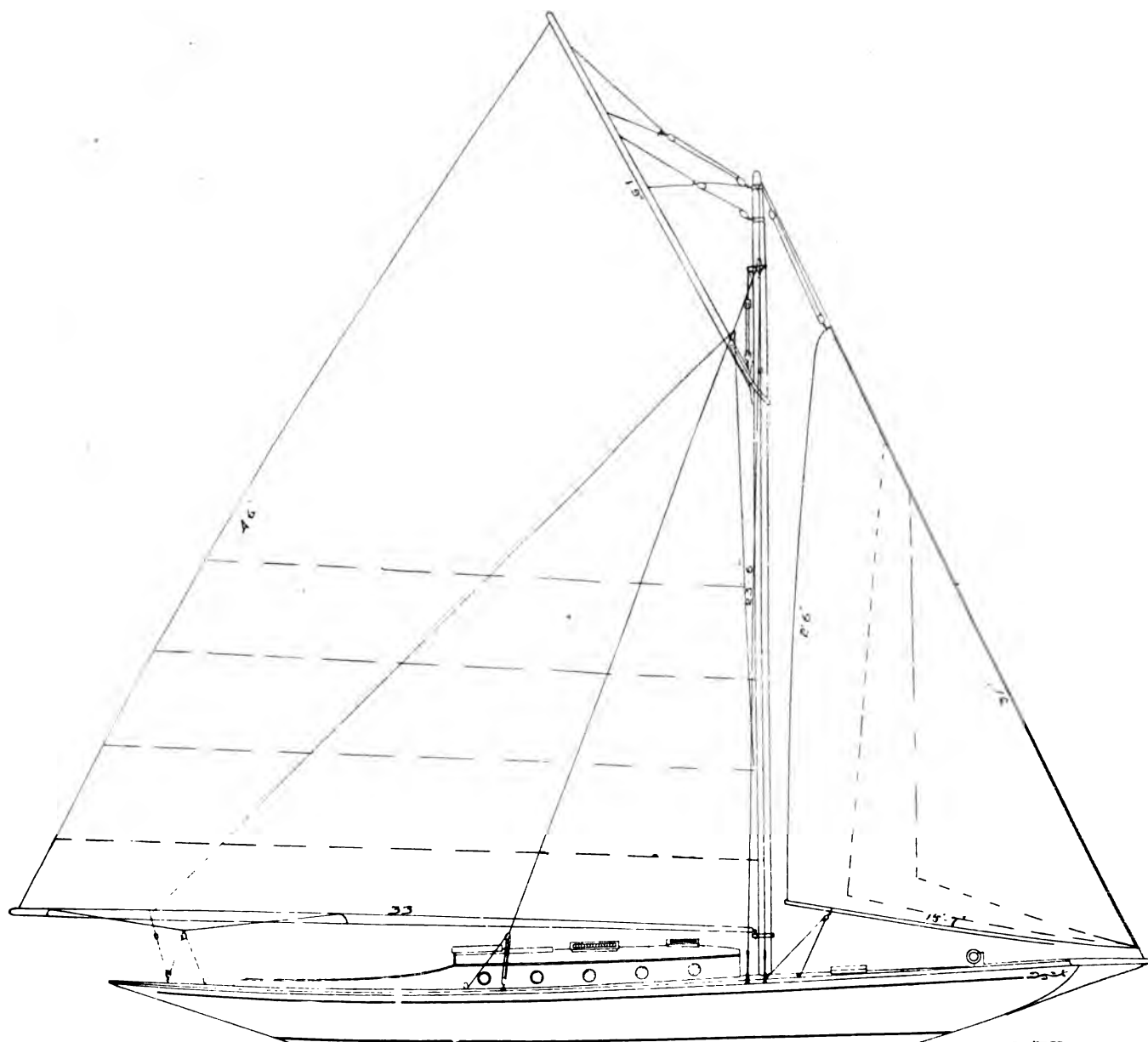
He desired a craft with fair speed under power, and the boat equipped with a 10-h.p. Buffalo contains a speed of 6 nautical miles per hour.

Although designed under the conditions as stated above, the boat has proved to be the fastest yacht in the Royal Nova Scotia Y. C. for the season of 1911, winning six firsts out of ten starts. Among the cups won being the much coveted Prince of Wales Cup

presented to the Royal Halifax Y. C. some years ago by the late King Edward. The craft's best point of sail is to windward, in fact her ability to go to weather won practically all her races.

Her construction is strong but moderate in weight, oak keel, stern-post, and deadwood, double stem, sawed frames of oak sided $1\frac{1}{4}$ inch moulded 2 inches at heel, and $1\frac{1}{2}$ -inch at head, bolted together and spaced 28 inches, two single steam bent oak frames of same size between each double frame, bilge stringers hard pine 6 by 2 inches tapered at ends, clamp hard pine 6 by $1\frac{1}{2}$ inch, shelf 4 by 2 inches hard pine, planking 1-inch hard pine, deck 1-inch white pine, canvas covered, house sides $1\frac{1}{4}$ -inch teak, house deck 3-inch white pine, canvas covered, skylights, slides, etc., of teak.

The cabin is finished in white enamel with mahogany doors and panels. Cabin and deck furnishings by A. S. Morss Co., Boston, Mass. Toilet by Goblet-



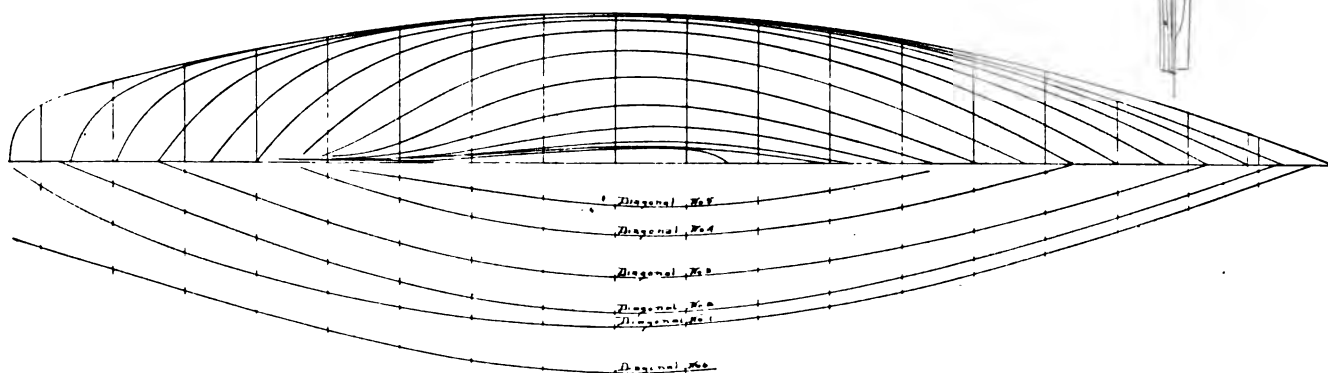
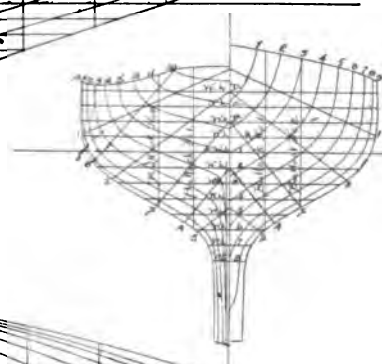
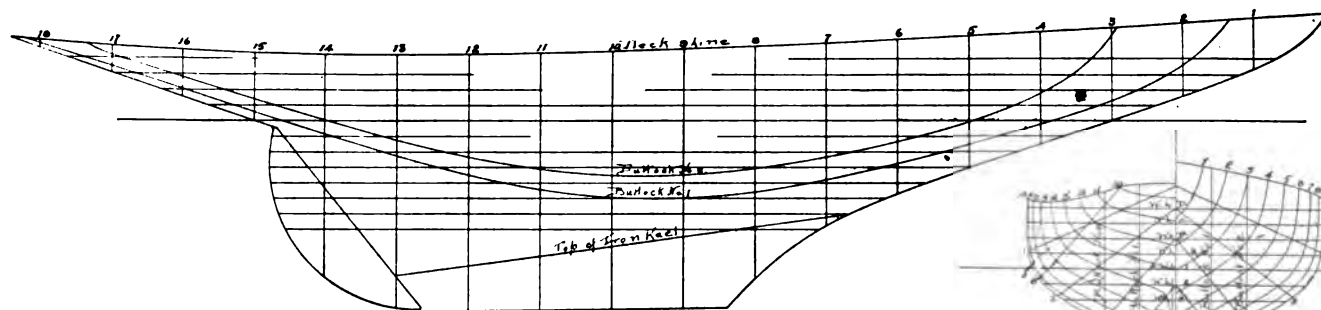
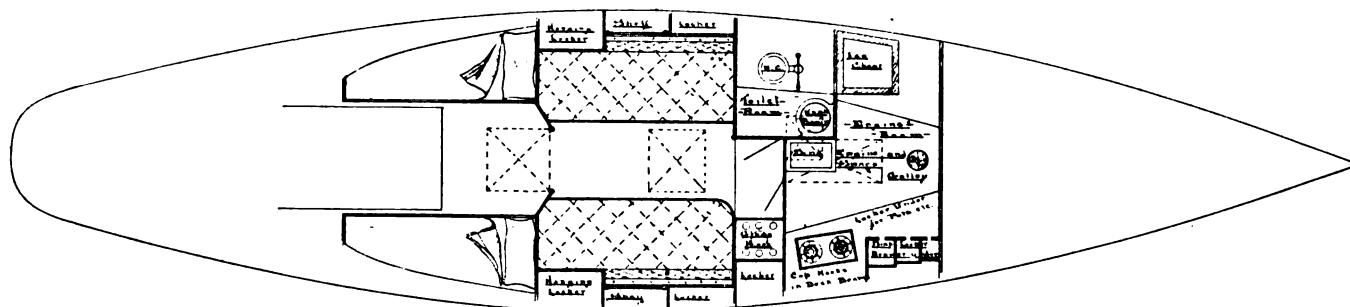
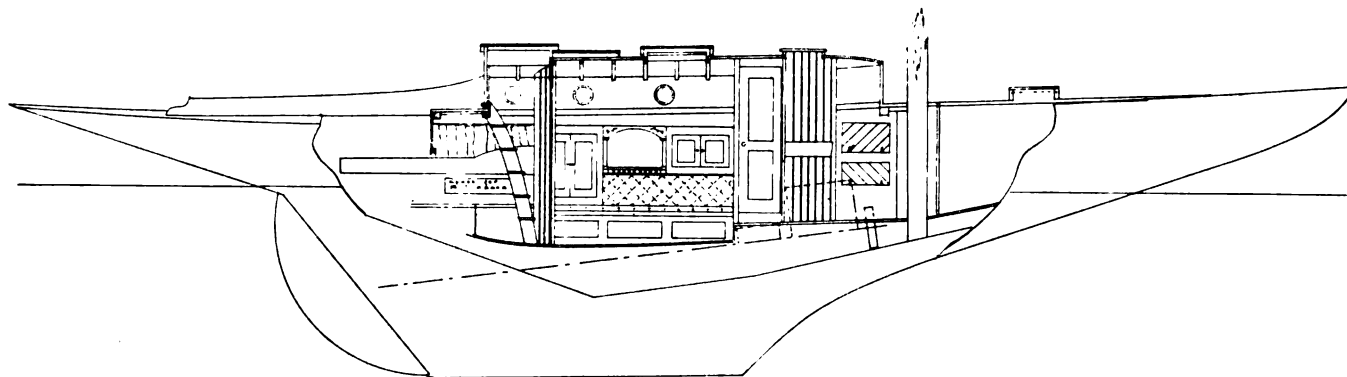
Auxiliary Sloop Zetes, 43 Ft. O. A. Designed by W. J. Roue, Halifax, Nova Scotia

Dolan. Blocks and turnbuckles by Merriam Bros.
Sails by Madder & Sons, England.

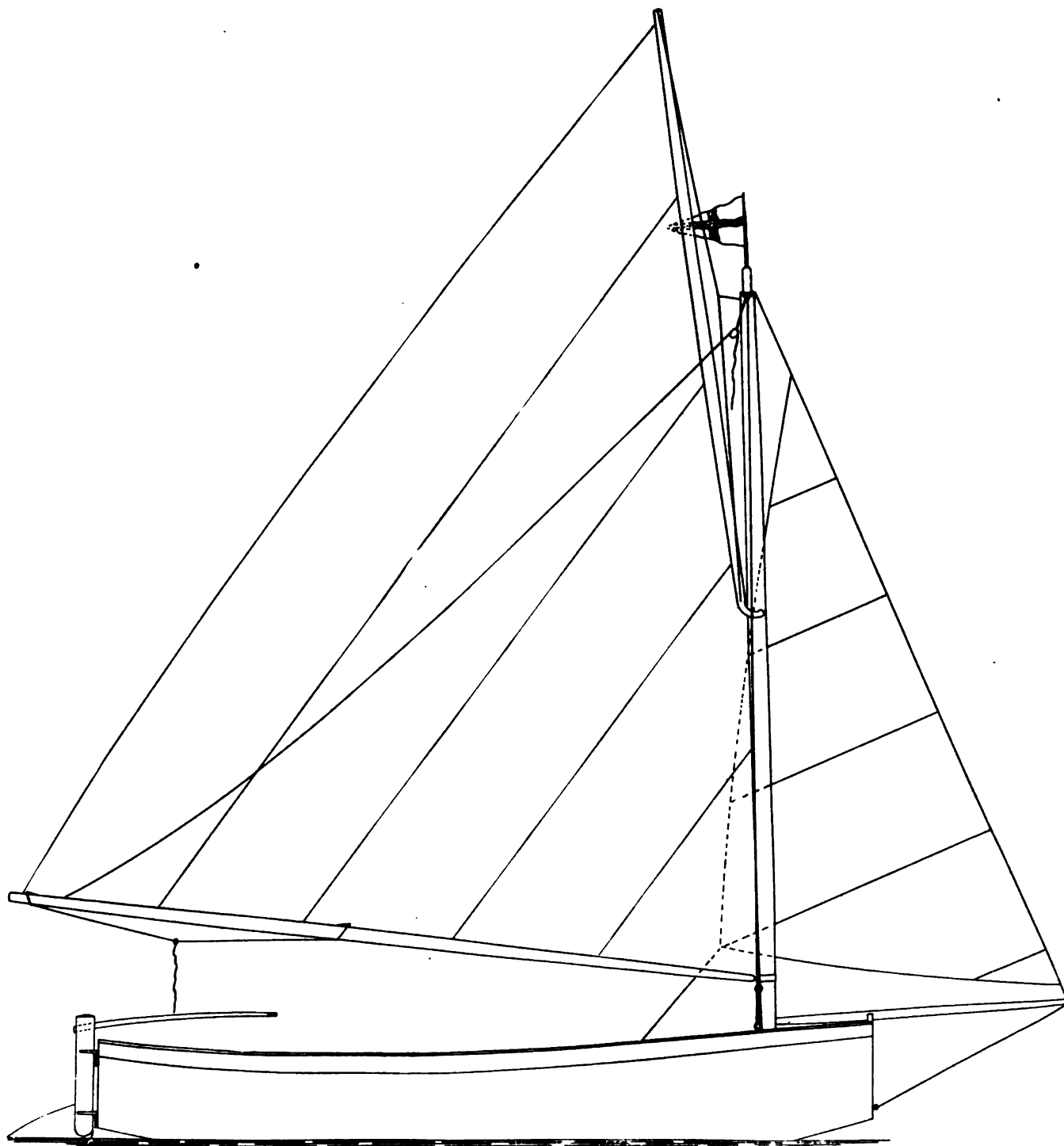
General dimensions are as follows:

Length o. a.....43 feet 0 inches
Length w. l.....28 " 0 "
Breadth 9 " 8 "

Draught 6 feet 2 inches
Headroom 5 " 10 "
to 6 " 0 "
Displacement 17,300 pounds
Ballast in iron keel..7,120 "
Rating under universal rule 24.6.



Accommodation Plan and Lines of Auxiliary Sloop Zetes



Twelve-Foot Pram Dinghy. Designed by Mr. J. Robert Cameron, of Dunedin, New Zealand

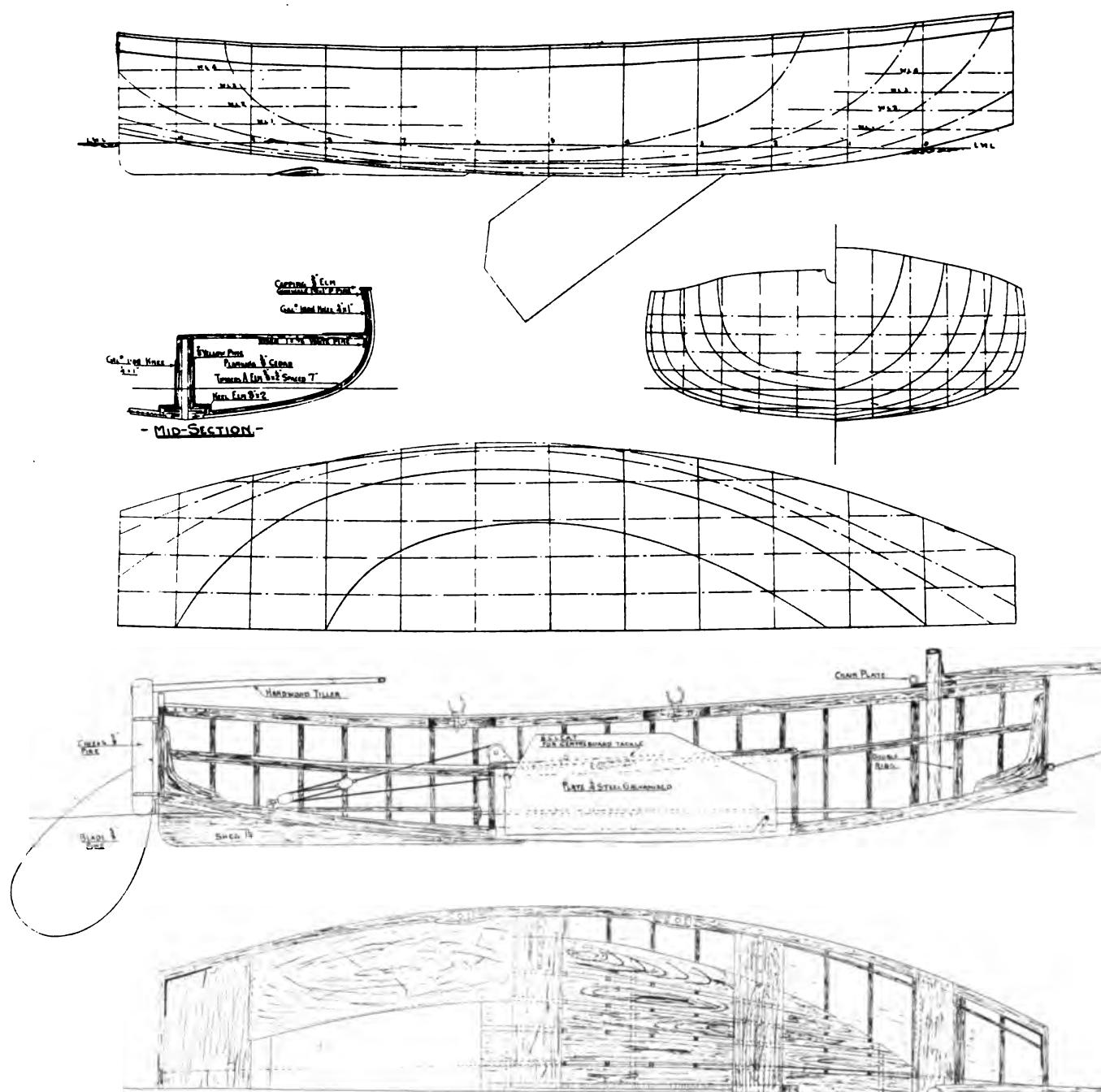
PRAM DINGHY

THE 12-foot pram type sailing dinghy shown in the accompanying plans was designed by J. Robert Cameron, of Dunedin, New Zealand, for a client in Canada for use on a lake in Manitoba. The craft is of simple construction and could easily be built by a clever amateur.

The sail plan, the designer states, is moderate for the boat, containing only 110 square feet, and the boat should carry the spread with ease. The centerboard is of $\frac{1}{4}$ -inch galvanized steel and weighs 50 lb.

General dimensions are as follows:

| | |
|-------------------------|------------------|
| Length o. a..... | 12 feet 0 inches |
| Length w. l..... | 10 " 0 " |
| Breadth | 5 " 1½ " |
| Draught, hull | 0 " 5½ " |
| Draught, centerboard .. | 2 " 5 " |
| Freeboard, bow | 1 " 10 " |
| Freeboard, stern | 1 " 6 " |
| Freeboard, least | 1 " 3¾ " |



Lines and Construction Plans of Twelve-Foot Prem

LYTTELWAN

THE drawings on following page are of an 18-foot launch which was designed by the owner, Samuel H. Brown, of Marblehead, Mass., as a towboat and tender for a raceabout. The owner writes of her as follows:

"The boat was designed as a tender to our raceabout and has proven very successful in her two seasons' use. We have made the trip from Marblehead to Hull several times under pretty strenuous conditions for such a small boat.

"The lines were not drawn for speed, because she is too full forward and too fine aft; but I worked her out this way in order that her bow would lift out when she is being towed by another boat. When running light she has made 10.7 miles per hour, which has proved to be

quite a bit faster than some of the speed boats in the harbor. The engine and fuel tanks were placed under a bridge deck amidship. This arrangement has proved very satisfactory, as it gets all the weight in the center of the boat, and I believe allows her to lift over the seas more readily than if the weights were spread fore-and-aft.

"On a 12-mile run Lyttelwan has averaged 6 miles per hour with our raceabout in tow. This was not on a calm day, but dead to windward against a strong wind but not much sea. The engine is a 10-h.p. of the two-stroke type."

The principal dimensions are as follows:

| | | |
|---------------------------|----|---------------|
| Length o. a. | 18 | feet 0 inches |
| Length w. l. | 16 | " 0 " |
| Breadth, extreme | 4 | " 2 " |
| Breadth at water-line ... | 3 | " 6½ " |

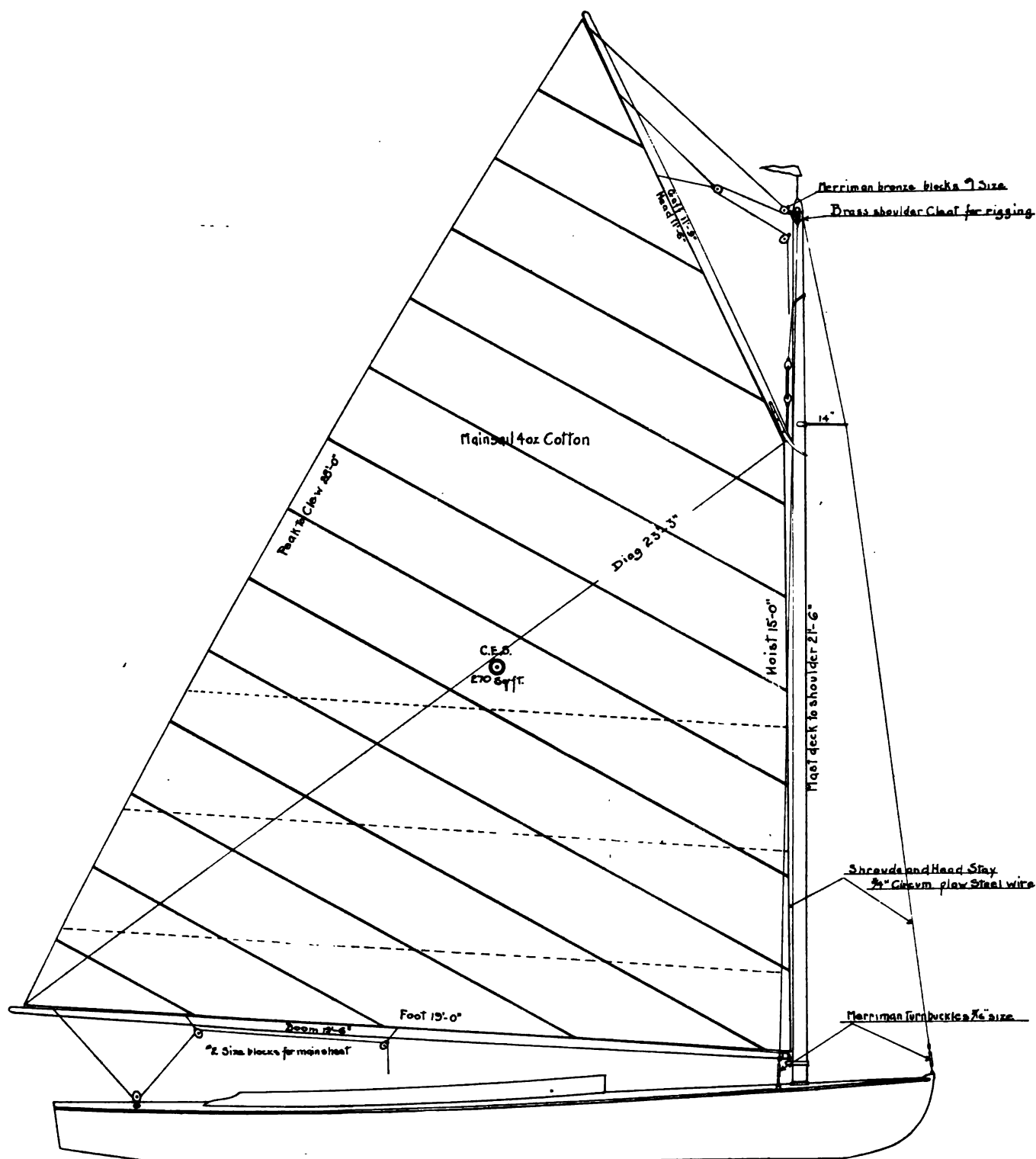
OLD SAM

THE accompanying plans show the catboat, Old Sam, which won the Taft Cup for catboats at Toledo, Ohio, last season against a class of eighteen boats.

Old Sam was designed by Bowes & Mower, of Philadelphia, and built by the Peck-May Company, of Toledo, for Commodore S. O. Richardson, Jr., of the Toledo Y. C. She was built under the direction of Mr. George C. King, and sailed by him in all her

aces. She started in twenty-six races, and won twenty firsts, four seconds, one third, and one fifth place. These races included winning the President Taft Cup, the Craig Cup, the News-Bee Cup, the Monroe Cup, and the Sweepstake Race in Lake St. Clair for catboats. Her Skipper states that she has been a wonderful little ship in all weather, and especially good to windward.

The rules of the class for which Old Sam was de-



Old Sam, Winner of the Taft Cup Last Season at Toledo, Ohio. Designed by Bowes & Mower, Philadelphia, Pa.



HURRAH'S NEST

"A Place for everything and nothing in its place." Letters for insertion under this head are limited to two hundred and fifty words, and must be accompanied by correct name and address of writer. Address the Hurrah's Nest, care Editor THE RUDDER, 1 Hudson St., N. Y., U. S. A.



CRUISER DESIGN AFTERMATH

NESTLED in Hurrah's Nest of the May RUDDER, I find a *criticism* of my critical comments on the cruiser designs in last December issue of THE RUDDER.

I could say that I was surprised that Mr. Smith, who by his own statement is a salt-sea sailor, should suggest that a storm might saunter along until he sailed into some convenient port, located the Standard Oil Company storage station and filled tanks, for he is very positive that no prudent yachtsman ever goes out in rough weather without first filling tanks (he does not give any remedy if some inconsiderate storm that had never been permitted to play in good society and did not know the rules and so "should go on a tear" as the aforesaid yachtsman was returning from Penobscot Bay with the forepeak tank half empty). But this is not the place for sarcasm or joshing. There had to be a wreck of a Titanic before precedent and practice could be publically proven to be wrong.

There are over four thousand pleasure craft here in Detroit and four-fifths of the fleet have tanks forward or aft, but that does not make it the correct place. For the small craft that do not go out of sight of land it does not matter, but for the real cruiser *that does* it is different. That there are thousands of *cruisers* (?) that are naval errors in this and other respects and yet none have been lost in the past few years, only convinces me that there is a God and that He watches over foolish people. After this digression, we will get down to facts.

Mr. Smith admits the weakness of his own argument for tanks forward and aft by saying they should be kept full, or rather, should be filled before going out in bad weather, and that the water consumption should keep pace with the gasoline depletion, etc. Which only strengthens my claim that the tanks which vary in weight as the fluid is consumed should be amidships, where this variation will not affect the trim of the craft. Even if they do take up more room. Furthermore, they should not be built-up tanks *with seams to leak*, but seamless steel and cylindrical in shape, though these take up even more room. He says gravity feed is sure. Certainly; and I have two such tanks alongside the engine but against the frames and up against the deck beams, where they steady the boat, and are high enough that no matter what kind of a sea is on, gravity feed is certain. My feed pipes are not more than a few feet long, and in sight for inspection

any time. He speaks of my cruiser being hard to handle in a following sea by reason of all my weights being amidship. The *tanks and engine* are not all of the weight by any manner of means. We carried two anchors forward on the deck and a few pounds of chain in the chain locker in the forepeak. We had other weights of different kinds and character in other locations, both forward and aft.

Now about V sterns, he intimates that possibly one of my old cruisers was poorly designed; but it just so happened that she was designed by one of the best, yes, the best, or at least the oldest and best known of Eastern naval architects.

I reiterate, *any V-stern cruiser steers badly in a following sea*. I don't say that they cannot be steered in a following sea, for cruisers with that type of stern have gone to Bermuda and to Havana and have even won such ocean races. Fortunately or unfortunately for me, I never had the opportunity to go on one of those ocean races; but if Mr. Smith will inquire of those crews he will learn that in a following sea they could not hold the course within *two to three points* (not degrees, mind you). If a Normand type of stern was just as seaworthy and steered just as well in all kinds of seas, nothing else would be used; for it is certain that such a type is faster and also gives more room for given length of boat. If the Normand type were the best, why is it not used on lifeboats? Even the great ocean liners, with deep draught and deep keels, do not steer as well in a following sea as they would if they had compromise type of stern. It is against the rules, but I have been in the emergency wheelhouse on several vessels and noted that they swing two points off, back and forth, in such a sea. But for that matter, you do not have to be in the wheelhouse watching the compass; to verify this just ask the second or third officer for permission to go to the steerage quarters; then pass to the stern and watch the wake of the biggest and best of them in a following sea, and you can see how they steer. If Mr. Smith likes that kind of stern I will not quarrel with him about it or discuss it in future issues. It will probably get him to Penobscot Bay for the sixteenth time, and I trust back again. But that does not prove it is the best type.

This contest is now closed as far as I am concerned.

Detroit, Mich.

J. WALTER SCOTT.

SHALLOW-DRAUGHT TWIN-SCREW LAUNCH

THIS launch has been built by Messrs. John I. Thornycroft & Co. Limited, of Woolston Works, Southampton, to the order of the British-American Tobacco Company, and is intended for river service in South China, carrying samples of goods. Much business can be done in this way in a country where roads are practically non-existent.

The little vessel, Rosette, was required to have a fair turn of speed, 9 knots being guaranteed, and the draught when loaded with two tons was not to exceed 1 foot 3 inches on account of the shallowness of the river. Her length, moreover, was not to exceed 53 feet.

Living quarters and galley were to be arranged aft for Chinese crew and forward for the company's representatives, and a certain amount of bulky cargo had to be carried amidships.

On trial Rosette fulfilled all that was required of her, a speed of nearly $9\frac{3}{4}$ knots being obtained on 1 foot 3 inches draught when loaded with two tons. The owners expressed themselves as highly satisfied with the arrangements, performance and finish of the boat. The general arrangement is as follows:

A short deck is arranged forward for working anchors, warps, etc. A saloon for four white people, fitted with berths, table and writing desk. Opening off the saloon are galley and pantry one side, bath and w.c. the other.

Amidships is fitted the cargo hold divided into two spaces and fitted with sliding doors.

The engine space is abaft the cargo space and abaft that again is a space for crew, fitted with bunks, w.c. and galley.

The house over the accommodation is carried right out to the ship's side and to provide a passage fore-and-aft a battened platform 2 feet wide is built out at the sides, supported off the ship's sides by means of tube stays.

A bridge deck is arranged over the saloon and is provided with a canvas awning and curtains.

The propelling machinery consists of two sets of Thornycroft M/4 type of engine, using kerosene as fuel and starting on gasolene, or if a blow lamp is used, on kerosene. The engines are designed specially for marine work and are fitted with standard vaporizer.

The engines drive solid propellers of Thornycroft

bronze through standard combined clutch and reversing gear, and access can be had to the propellers through screw-down hatches under the stern deck plates.

The circulating water for cooling is strained through sponges held between perforated plates, as the Chinese rivers are very muddy.

The craft proved very handy and turned in a very small circle with both propellers working ahead. With one running ahead and one astern she turned practically in her own length. There was a noticeable absence of vibration. She has been taken apart and shipped to Hong-Kong, where she will be re-erected and put into service.

SPRAY

IN view of the continued interest that is manifested in Spray, I am sending you the accompanying photographs of her, taken five years ago.

In May, 1907, the Washington papers announced that Spray was in port, having stopped at Washington on her way home from a Winter's cruise among the West Indies. Many Washingtonians improved the opportunity to visit the famous vessel, and received a cordial welcome.

The writer made two visits to the craft, on the second occasion taking with him his wife and two small boys. We wandered all over the boat, and Captain Slocum kindly pointed out the various objects of interest. He had the forward cabin well filled with marine curios—shells, corals, plants, etc.—from the West Indies. But the youngsters were chiefly interested in seeing the exact locality where Captain Slocum had scattered carpet tacks to keep off the savage Fuegians while Spray was in the Strait of Magellan. After talking with the captain for half an hour or so, seeing all there was to be seen, and signing our names in the visitors' register, we departed.

The pictures give a good idea of the appearance of Spray when in Washington. To be sure, she was rather shabby as to paint; but in view of her comparative newness, and the experience of her skipper, we supposed she would be afloat for many years. It is hard to realize that she is undoubtedly at the bottom of the ocean, with her kind-hearted and able commander, whose exploit in circumnavigating the globe alone probably never will be duplicated.

Washington, D. C.

PERCY E. BUDLONG.



Twin-Screw Shallow-Draught Launch, Designed and Built by Messrs John I Thornycroft & Co Ltd



Runabout Designed and Built by The Luders Construction Co., for Service on Lake George, N. Y.



Views of the Long-Lost Spray and Captain "Josh" Slocum, Taken at Washington, D. C.



Thirty-Eight-Foot Sea Bird

THIRTY-EIGHT-FOOT SEA BIRD

You remember some time ago I mentioned the fact that we built a frame for the Naiad, which is a 38-foot Sea Bird. This frame went to a Mr. Huntington, and as it happened he called on us last week bringing with him about one hundred photographs of himself and his boat. Mr. Huntington is a very interesting "old salt," and states that he built his boat entirely himself from our frame, sawed every piece out by hand, including planking, bored every hole, and put in every fastening, in fact it is his own boat from the keel up.

NIAGARA MOTOR BOAT CO.

COPPER BOTTOM

I HAVE a power boat over 40 feet long, and "to save further trouble," I covered her bottom, three years ago, with sheet copper. I pulled her out last Fall and neglected to clean off the copper, as I could probably have easily done at that time. Now, I am about ready to launch, and I find the copper is in bad shape. In some places, it is pitted; in other places, the copper has scaled off; in others, there is a green corrosion. In some places, the surface is smooth, and the body of the copper is intact; in still other places, especially near the water-line, there is a sort of accumulation or deposit of corrosion, grease, etc. But, taken as a whole, it presents a very unsightly appearance, and is so rough and uneven that it will interfere seriously with speed.

In my efforts to get a surface uniform in appearance, and reasonably smooth, I have tried sulphuric



Producer-Gas Canal Boats Operated by the Lehigh Valley R. R.

acid, muriatic acid and all kinds of soaps and cleansers. I have even tried sand and emery paper, which smooths and brightens the high spots and leaves the depressions untouched.

Can anything be done to get back a smooth, even surface? What treatment should I have given this copper last Fall to have found it smooth and bright this Spring at launching time? I read all sorts of good advice in your excellent magazine, but have noticed nothing on this particular subject.

Ocean City, N. J.

O. C.

NEW MARINE CODE

YOUR competitors put you to shame in the way of enterprise, and it is no wonder you are always howling for more subscribers.

For example, on page 32 of the March ———, Mr. A. D. Hard furnishes some useful and timely hints on the operation of power boats, among which is the following:

"Get into the habit of giving *two* horn signals when you turn to the *right* and *one* when you turn to the *left* in meeting other boats."

Now that is so clear that any landlubber may understand exactly what to do in the most complicated situation. It is expressed in simple language readily understood by beginners as well as expert pilots.

Why don't you publish something like this that is useful and valuable.

STANTON M. SMITH.



Enlarged Sea Bird, Built by Mr. Ericson and Partner, at Geelong, Australia

NORFOLK BROADS

HEARTY congratulations on your trip to Rome. I know enough of the game to appreciate your knowledge and skill. I myself feel there are very few men of your build floating about. When I knew you would be passing through London, I wrote my son to get your address at the Yachting Monthly office and call on you; but he was just too late—you had left for New York. I enclose you a week's holiday my boy has done; he is only a lad of eighteen, and I think he has written it fairly well.

Geelong.

DICKSON.

A WEEK ON THE NORFOLK BROADS

It was in the month of July when Mr. Hugh Peck, son of a well-known Melbourne yachting man, said: "Dickson, I believe that the Norfolk Broads make good ground for a cruise. What about a week there." I said, "What are the Norfolk Broads?" But his knowledge on that point was rather vague, so we purchased a guide book, and read that the waters of Norfolk consist of about 200 miles of navigable and picturesque streams, and connected with them are a number of lakes, known locally as Broads.

This sounded rather promising, so, on the strength of it, and the enumerations of the benefits derived from a cruise set forth in the multifarious illustrated catalogs which arrived during the next few weeks, we hired a river yacht, with accommodation for two, bearing the piratish sounding name *Wolf*, and on Saturday, September 9th, found ourselves on the wayside railway station at a small Norfolk village called Wroxham. The cluster of masts visible above treetops and houses betokened the proximity of a stream; and it was thereto we hurried our footsteps. A short walk brought us to the boatyard and upon being informed that *Wolf* was not quite ready for us, we left our bundles and went to a neighboring store to see about the provisions which we had ordered, by post, a few days previously. These were wheeled to the boatyard, and having boarded *Wolf*, which lay in readiness alongside the staging, we stowed them away and set sail with wind and tide down the River Bure.

We had now an opportunity to examine our hireling, and found that she was a clinker-built 22-footer, with a snout nose, a large cockpit, and a cabin with sleeping room for two. In the cabin we found an ingenious contrivance for giving extra headroom when not sailing. The cabin top was built apart from the coamings, and the two were connected by a strip of canvas varying from 6 inches to a foot in breadth. When the boat has been moored for the night the crew creep into the cabin in single file, and having placed their backs against the roof lift together. When the top has been raised as far as the canvas will allow it is supported by six wooden battens. It is a very good idea, as it combines the advantages of a low deckhouse for sailing and headroom, which otherwise would be impossible when the cabin is needed.

Along the river bank for half a mile down from Wroxham are pretty week-end cottages, and in our interest in these and the boat we missed the entrances to the first set of Broads, in consequence of which our first three or four days consisted of a river cruise. Sailing on through very pretty river scenery we reached Acle Bridge just before sundown. Here we had our first experience of lowering away the mast, a too complicated operation to describe here, but one in which we became very expert before the end of the week.

At Acle Bridge lay about thirty yachts of all shapes and sizes. Probably what struck us more than anything else during our cruise was the size of the yachts sailing on these waters. We had expected to find the usual flat and small type of boat which one sees on Australian rivers. Instead of this, striking an average, we found that they were of a larger size than those cruising on Port Phillip Bay, and among them were to be found boats half as large again as *Thistle*. The wherry is a queer-looking craft. All the trading boats are wherries, and an appreciable percentage of the yachts consist of this type of boat, which harmonizes well with the surroundings. Floating low in the water, they carry only one sail, with a very heavy gaff, and no boom. What rather detracts from the appearance of the private wherries is the inevitable garden seat placed just forward of the mast.

A mile or two below Acle Bridge we moored. We were just entering what can be only described as the windmill country. In several places the level of the river is above that of the surrounding country, and so to save it from inundation—just as in Holland—embankments have been thrown up and windmills erected. It was behind one of these that the moon rose, and the broad cylindrical tower and long, gaunt sails standing out before its light composed a scene which was as attractive as it was unique to our Australian eyes.

Next morning we set sail against wind and tide, and until the latter changed, soon after midday, we made but little progress. The country is here very flat and uninteresting, the bareness being relieved only by the windmills, which mark the course of the stream. As Yarmouth gradually appeared, one was rather struck with the forcible reflection of David Copperfield, that Yarmouth must be close to one of the poles, which would account for its flatness, and, as he subsequently hinted to Peggotty, a mound or two would greatly improve its general appearance.

Our course down the Bure was very much hindered by the mud-banks which abound in the Yarmouth end of that stream, but we eventually reached the first railway bridge, and as the tide was running at a terrific pace, we pulled up alongside the bank, and walked ahead to reconnoitre. Having returned we lowered away our mast, and tried to drift through with the tide. The boat lost steerageway, and was carried across on to one of the rocky embankments, and we had great difficulty in getting the mast up again. As we were struggling to push the boat off the rocks a small boy informed us that there were more bridges to negotiate, and so we decided to cross over to the other bank and moor there until the tide changed, and then proceed up the river again. This was a more difficult task than at first appeared, and although we successfully accomplished the former part, the rush of the tide was so great that we found it impossible to keep the boat alongside the bank. We should have fared rather badly had not one of the Yarmouth River pilots put in an appearance at the moment, and helped us into a berth. As we were quite inexperienced in the management of a boat in a tide-way, we arranged with him to take the boat through Yarmouth across Breydon Water, to Berney Arms, and later on in the week back again. We walked through the main streets of Yarmouth that evening, but they did not appear to be possessed of any particular beauty. I noticed that the trains were, as is the case in all the large English towns which I have seen, municipally owned.

Next morning we crossed Breydon Water, a strip of water very much like the Barwon at the Heads at high tide, and possessed of a similar likeness when the tide is out. At Berney Arms we dropped our pilot, and breakfasted on Yarmouth bloaters, which are a good deal more appetizing when fresh than when packed in the cans in which they are carried to the uttermost parts of the earth. From Berney Arms we sailed up the Yare to Reedham, which is noted as being the capital of Edmund, King of East Anglia. However, the extent to which the metropolis of the martyred monarch has been degraded may be judged from the fact that its one store could not produce a packet of primus prickers. The nearest article to it was prime pickles, which we had great difficulty in explaining to the village maiden who served behind the counter, would not do as a substitute. We sailed on up the Yare to a little way past Cantley, and then returned to Reedham, and beat against wind and tide along a canal into the river Waveney. This was our record beat against the wind; when we had sailed along one-fifth of its two and a half miles, we had put the boat about sixty-two times. After that we gave up counting.

From St. Clave's Bridge we sailed next day back to Berney Arms, calling on the way at Burgh Castle. This is the oldest ruin in Great Britain, with the exception of Stonehenge, and is the wall of a Roman camp erected in 50 A.D. by Ostorius Scapula, whose legionaries encamped there after a decisive victory over the Icenii. It is in a wonderful state of preservation. The dimensions of the camp are about 200 yards long by about one hundred across. The walls are 14 feet high, and average about eight in thickness. The whole of the West wall is missing. Its history did not end with the Roman evacuation, as in 636 it was chosen by Fursens, an Irish monk, to be the headquarters of an East Anglian mission, which was attended with great success. Next morning we were piloted back through Yarmouth, and that night had reached Hickling Broad, which lies at the head of the River Thurne, one of the tributaries of the Bure, and is in appearance like some parts of Connewarre. On the following day we returned down the Thurne, and re-entered the Bure. We drew up alongside the bank to have a look at another interesting ruin, the Abbey of St. Benedict. The Bishop of Norwich is

the only abbot in the Anglican Church, and is styled in documents as Bishop of Norwich and Abbot of St. Benedict. All that remains of the one-time stately abbey are traces of the foundations, and a fine gateway into which an unsightly mill has been built. The abbey was erected in 1020 by Canute. In 1066 the monks offered a stubborn resistance to the Norman invaders, and were only overcome by the treachery of one of their number, who, tempted by a promise that he should be created abbot, admitted the besiegers at midnight. The Normans kept their promise, and having conferred the abbacy upon him, rewarded his infidelity by promptly hanging him. Next morning found us in Barton Broad, where we visited Stalham, a large sized village, and Barton Turf, one of the most picturesque little villages I have ever been privileged to see. Our last night's stopping place was Wroxham Broad, a fine sheet of water, for the privilege of mooring in which we paid the sum of half a crown.

Next morning we reached Wroxham Bridge, our starting place, and so concluded our cruise. In it we covered just 120 miles of waterways, and the extent of country we saw, and the ever-changing panorama on which we feasted our eyes, well rewarded our effort to see an interesting part of England by means which few Australians adopt.

W. EVERARD DICKSON.

ONE OF NATURE'S FREAKS

WIND and water play some curious tricks with the rocky features of old Earth. Here is one of their freaks at Whangaroa, New Zealand. The rock is a coral formation, with alternate hard and soft layers of coral, and the sea has cut the pillar nearly through. It clearly shows how the ice boulders, so familiar to us in the Northern hemisphere, were formed.

PAGO-PAGO HARBOR

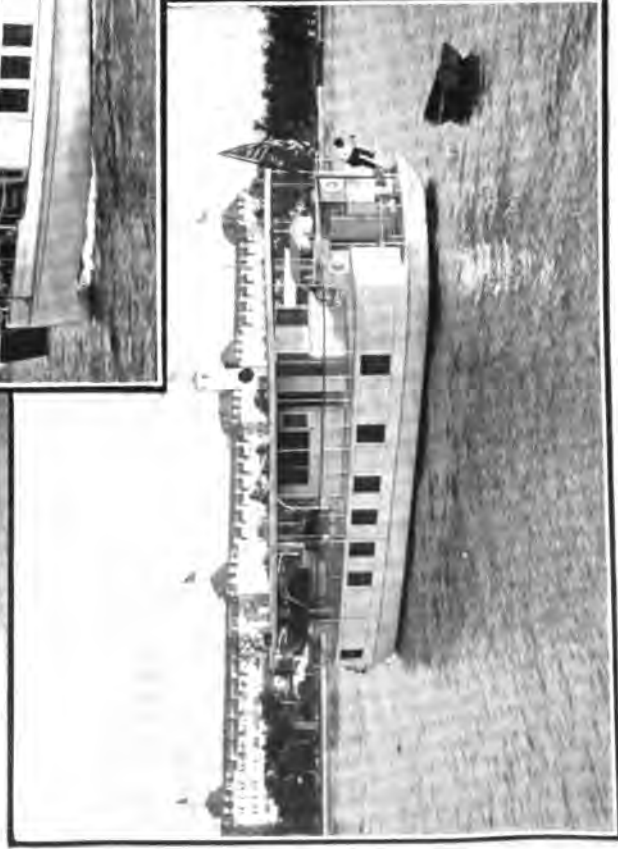
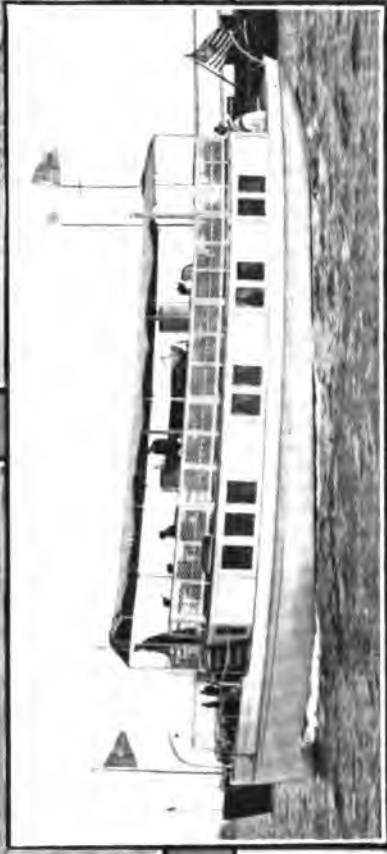
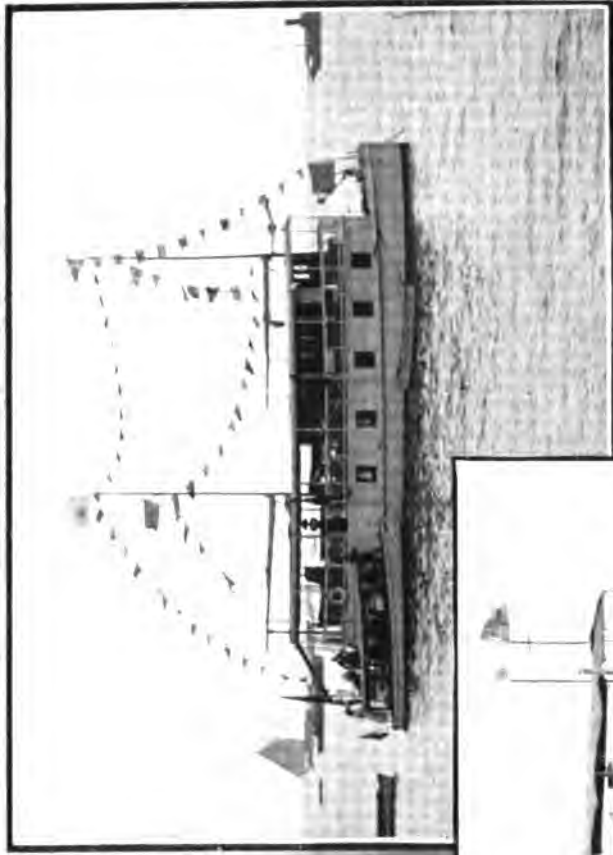
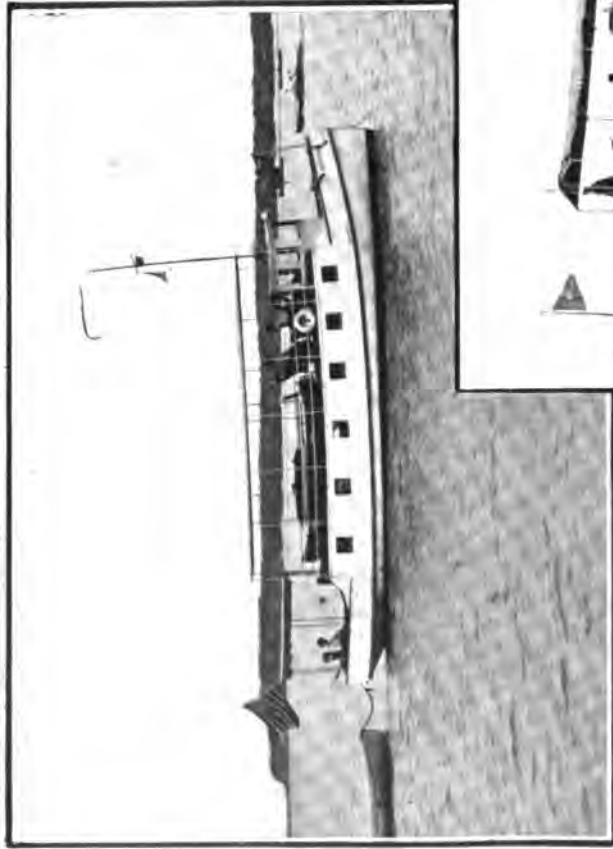
THE harbor of Pago-Pago, said to be one of the most secure in the world, is on the Southeast coast of Tutuila Island, Samoa. It is a United States coaling station and since 1899 has been under the American flag. Mr. Burton Dibbs, a Sydney yachtsman, cruised among the South Sea Islands in 1896, and took this picture.



Nature Freak at Whangaroa, New Zealand



View of Pago-Pago Harbor, Samoa



Types of Power Houseboats Such as should be Developed in the Designing Competition Announced Last Month

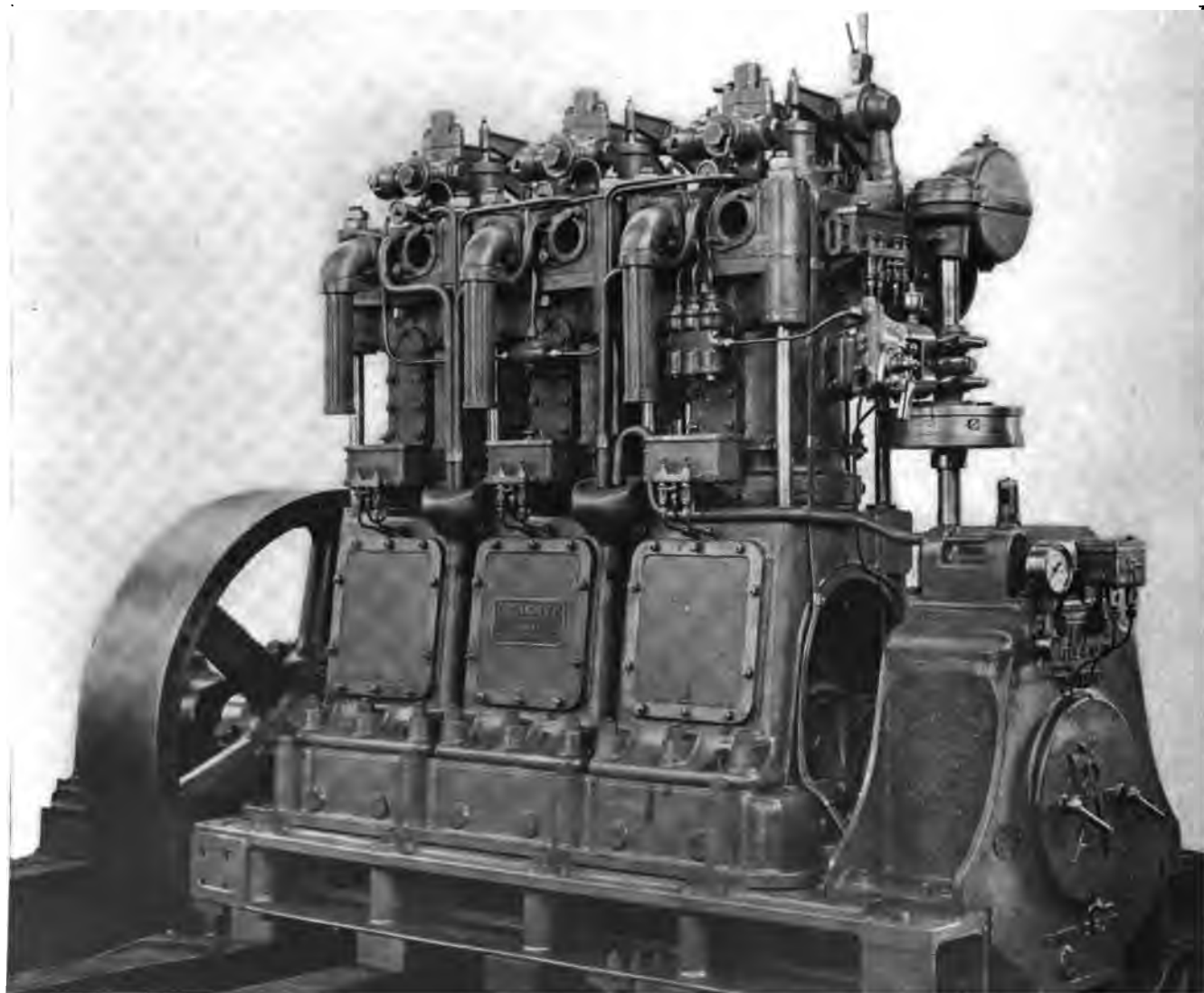
ATAIR, A TWIN-SCREW DIESEL YACHT

J. Rendell Wilson

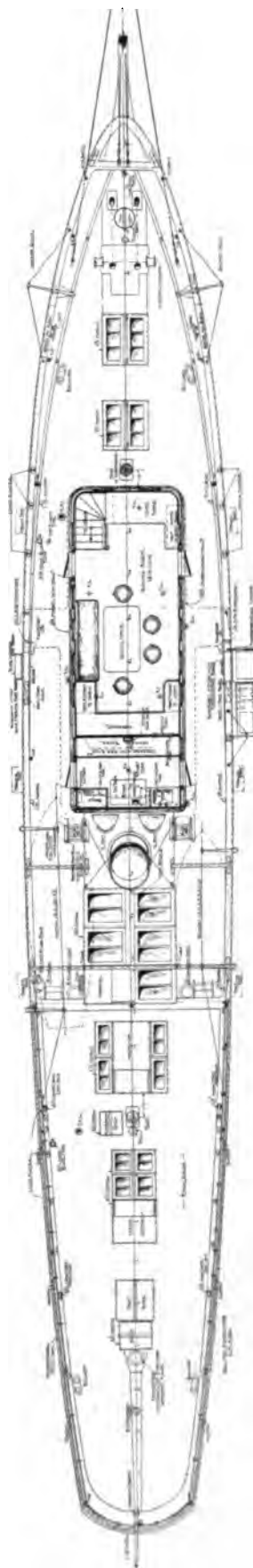
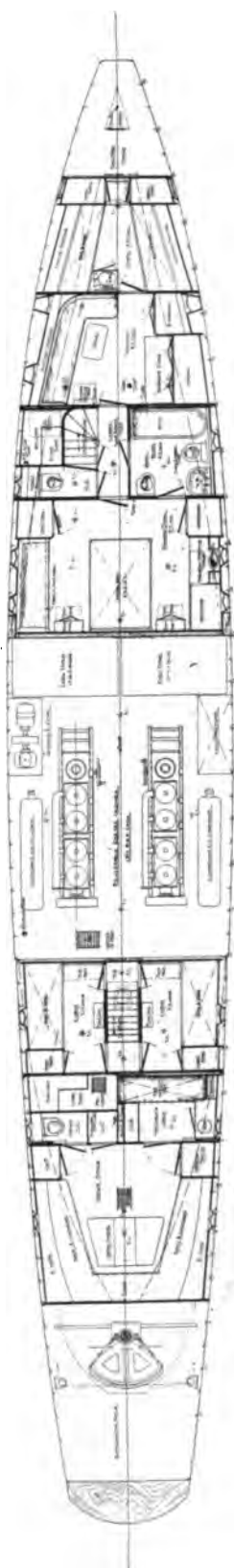
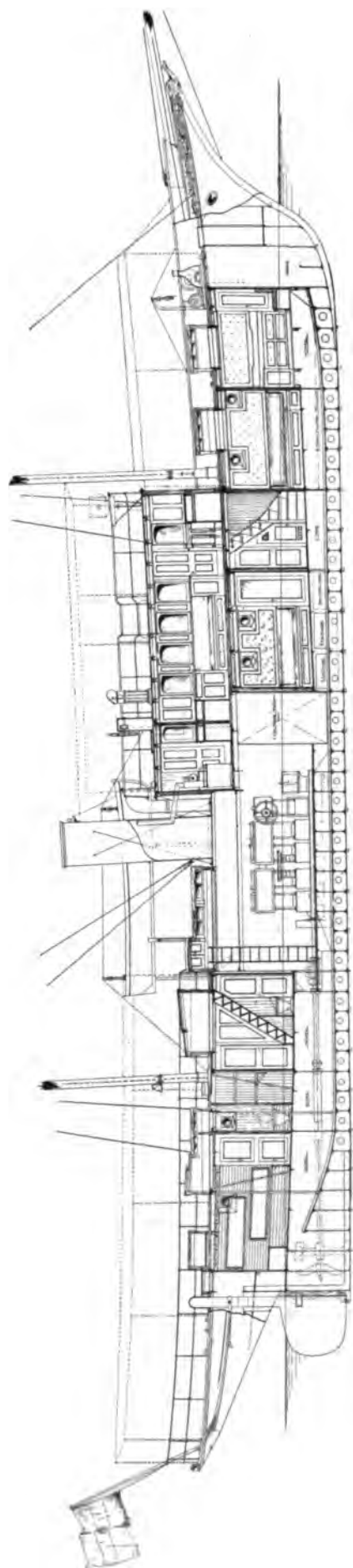
IN a few years' time the building of a large steam, or gasoline-engined yacht in America, England, or elsewhere will be a rare event, so great is the saving in the fuel bill when residue oil engines of the Diesel or Semi-Diesel type are installed. Already this class of machinery is rivaling steam engines for the propulsion of liners and small warships, and in the pleasure marine world its advent is causing a serious disturbance. Among the concerns in the United States that have turned their attention to Diesel manufacture may be mentioned the James Craig Company, The New London Engine and Shipbuilding Company, Kalenburg Brothers, and the Busch-Sulzer Company, and most of these firms have already turned out marine engines, while many other American firms are busy on the recently developed industry. Many an out-and-out sailing yachtsman will shudder when he learns the Kaiser's famous old yacht Meteor III, is now driven by a Diesel engine.

In THE RUDDER of August, 1911, I described the high-powered auxiliary yacht Fantome which was built by Camper & Nicholson, of Gosport, England. The same firm have nearly completed a full-powered twin-screw 121-ton power yacht, to be driven by Diesel engines, for a South American owner, Mr. Leloir, of Buenos Aires. She will be the first pleasure Diesel-vessel of her size to be built in Great Britain, although several more are on order and will soon take the water, while last year a Semi-Diesel-engined yacht of 80 tons was completed for the Marquis of Grahame. It is of interest to mention that Mr. Ludwig Nobel, of St. Petersburg, has a 20-knot twin-screw yacht, 110 feet in length and propelled by two 350-h.p. light-weight Diesel engines, also a 15-knot yacht driven by a 150-h.p. V-type high-speed Diesel engine, the latter having been built nearly three years ago.

Atair, as Mr. Leloir's new Diesel yacht is named,



Type of Diesel Engine of 100 H.P., Built by the Diesel Engine Co., Similar to the 150-H.P. Machines Installed in Atair



Atair, 115 Ft. O. A. Equipped with Twin-Screw Diesel Engines of 150-H.P. Each. Owned by Mr. Leloir, of Buenos Aires, A. R.

is, of course, of great interest, but her design invites criticism in view of the fact that the general features of the steam yacht have been retained, and that her machinery occupies far too much space in the best part of the ship; but this I will dwell upon presently. She is 115 feet long over all, 100 feet between perpendiculars, with 16 feet 6 inches breadth of beam, and 5 feet 6 inches draught on a tonnage (Y.M.) of 121 tons. Her propelling machinery consists of two 150-h.p. four-cylinder Diesel engines of the two-stroke type, constructed by John I. Thornycroft & Co., at their Southampton works, to designs by the Diesel Engine Company, of London. The latter concern have been established some years, and although they have never actually built a marine Diesel engine (the majority supplied by them having been turned out at the works of Carels Frères, at Ghent), they have supplied large numbers of land and marine engines, and not long ago a license was granted by them to Messrs. Thornycroft. However, a new company has just been floated in conjunction with Carels, with a capital of \$3,750,000 (£750,000), named the Consolidated Diesel Oil Engine Company. This will absorb the Diesel Engine Company, and new works are to be erected at Ipswich, England. Of course, any one is at liberty to manufacture Diesels, but generally licenses are obtained from one of the big Continental firms in order to get their experiences and designs, which greatly differ.

But this is wandering away from the subject; to return to *Atair*. The power installed gives her a designed speed of 14 knots. Turning to the accommodation arrangements, it will be seen that the hull is divided into six compartments by five watertight bulkheads, and that the crew space is at aft. At extreme forward below decks is the forepeak, which forms a large chain locker, aft of this, and separated by a bulkhead, being a cabin 8½ feet long, fitted with two bunks, two wardrobes, and a wash-basin with hot and cold-water service. Next is a saloon, equipped with a sideboard, cabinet, Angelus piano-player on the starboard side, and a lounge seat, table and writing table on the port side. This compartment is 8 feet long. Passing through the after door of this saloon, there is a companionway leading to the deckhouse; under the stairs being a lavatory, and a store, the latter containing a large ice-box. A passage separates these from a combined lavatory and bathroom. Aft again is the owner's cabin, a compartment 9 feet 6 inches long extending the width of the ship. It is beautifully furnished; the bedstead, of brass, is 6½ feet long, by 4½ feet wide, which will give an idea of the remainder of the fittings.

A watertight bulkhead, packed with silicate, separates the owner's cabin from the engine room, and noise is further deadened by two fuel tanks, each having a capacity of 1,416½ gallons, and the after engine-room bulkhead is also packed with silicate. Aft of the engine are two cabins, one to port, and the other to starboard, separated by a companionway, under which is a lavatory. The remainder of the space below decks is given over to the engineers and crew, with the exception of a sail locker in the counter. In the deck cabin, forward of the funnel, is the dining saloon, gallery, and chart room. The roof of this space forms the bridge deck. A large amount of deck space is occupied by the funnel; but this may

be dispensed with and the exhausts run up the inside of the mainmast. There is a powerful electric search-light on the forward end of the bridge deck.

Her engines each have four cylinders, and 150 b.h.p. is developed at 280 to 300 r.p.m. They are of the direct reversible two-stroke type. The air-compressors are self-contained with the main engines, so that there is no necessity to have an auxiliary engine to drive a compressor set. The cam-shaft for operating the valves, of which there are four in each cylinder head, is operated by a vertical shaft, driven from the crank-shaft, between each pair of cylinders, and there is also a lay-shaft for operating the fuel and lubricating oil pumps. On the vertical shaft is a centrifugal governor, which cuts off the fuel supply when the engine speed increases. The valves for each cylinder consist of a fuel injection valve, air-starting valve and two air-scavenging valves; in addition to the latter there being an air-scavenging port, uncovered by the piston towards the end of each stroke.

Briefly the working action is as follows: on the upstroke air is compressed to about 500 lb per square inch, and just before the piston reaches the top of the stroke the fuel valve lifts and fuel is injected under air blast of 900 lb per square inch pressure, combustion being instantaneous. Towards the bottom of the stroke a port is uncovered by the piston, also the air-scavenging valves, and port, open and air is admitted, from the compressor at the forward end of each engine, at about 5 lb per square inch, well clearing out the burned gases. This cycle of operations is then repeated. Reversing is carried out by means of a lay-shaft running parallel to the cam-shaft, which serves to alter the fuel valve cams to the position required for running astern, and at the same time allows the starting cams to come into operation when the engine is started, or when the engine moves over from ahead to astern. The reverse turning impetus is given by compressed air from storage bottles, and the engine runs on air until the fuel valves come into operation, which is almost immediately, as is also the case when starting. The steel storage bottles can be seen on either side of the engines. On the port side of the engine room is an electric lighting plant, electric light being fitted throughout the ship, while on the starboard side is a set of accumulators. The fuel carried is sufficient for a run of eleven days, but were she a steam yacht, bunkers of the same capacity as the oil tanks would only hold enough coal for about three days' steaming.

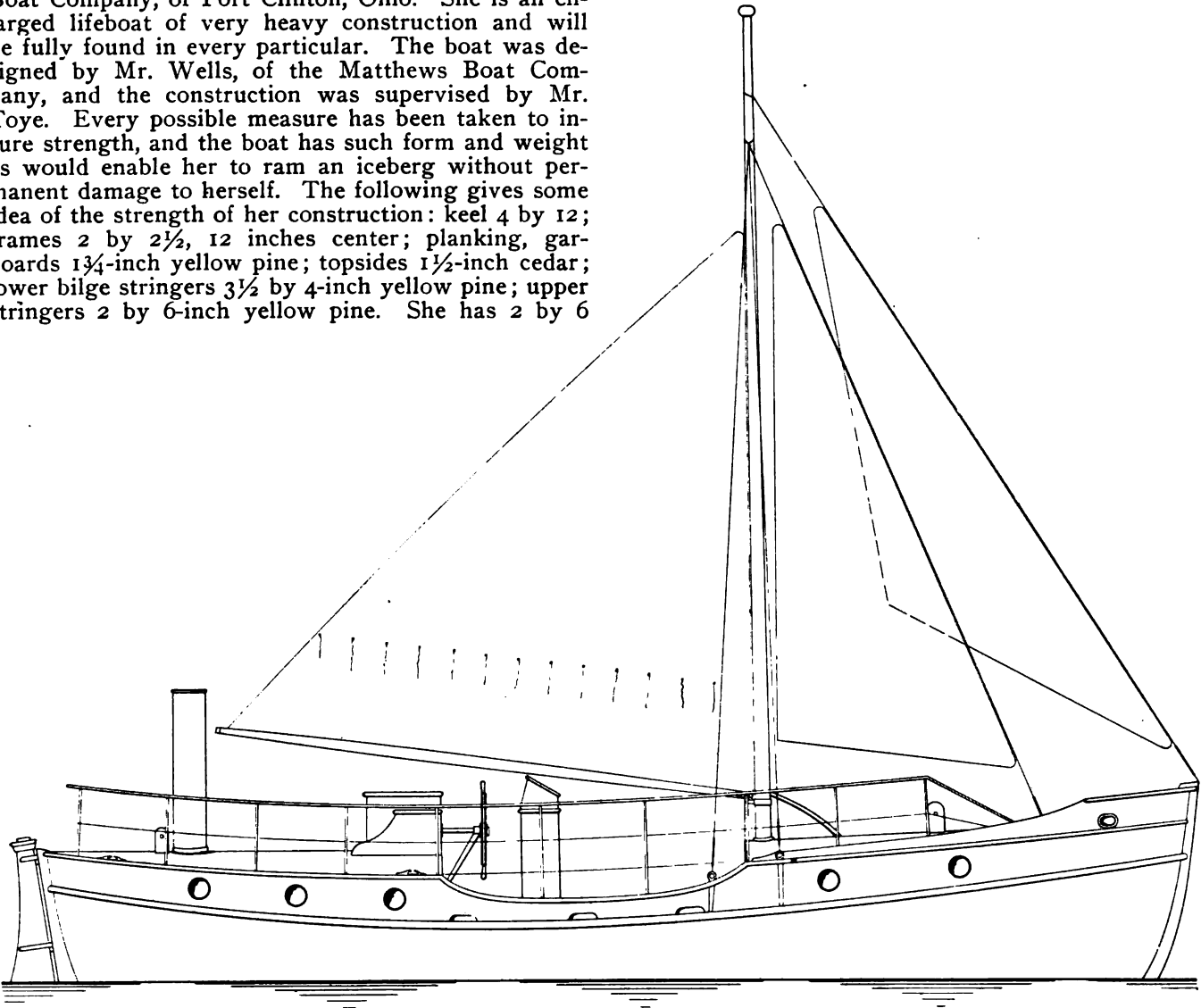
The fuel consumption of the main engines is about 0.6 lb per b.h.p. per hour. Some types of Diesel engines have a consumption as low as 0.4 lb; but in the case before us extreme economy of fuel is not an important question. Personally, I consider that better accommodation could have been obtained by giving her stern slightly fuller lines, and shift the engines about 10 feet further aft, also the two after cabins forward of the engine room; also by installing the fuel tanks below the engine room and cabin floors. This would give an extra 4 feet of amidship accommodation, or altogether about 14 feet more space forward of the engine room, where the full benefit of the ship's breadth could have been obtained. The engine room exhausts could have been run out at aft, or up the mainmast, and the space occupied by the funnel given over to a smoke-room, or extra promenade deck.

POWER BOAT TO ATTEMPT THE WESTERN OCEAN PASSAGE ON A VOYAGE FROM DETROIT TO ST. PETERSBURG, RUSSIA

AN attempt will be made this month to cross the Western Ocean in a small power boat. This vessel will sail either from Boston or New York, bound to Queenstown, Ireland, or Falmouth, England, the destination depending on how the fuel holds out. She will take the regular steamship track crossing South of the Banks and then following the great circle. The only question regarding her getting across is the fuel; if she has sufficient fuel to carry her the distance, about 2,700 miles, she will probably be able to make the voyage in twenty days. This boat is being built for Mr. W. E. Scripps, Commodore of the Detroit Motor Boat Club, by the Matthews Boat Company, of Port Clinton, Ohio. She is an enlarged lifeboat of very heavy construction and will be fully found in every particular. The boat was designed by Mr. Wells, of the Matthews Boat Company, and the construction was supervised by Mr. Toye. Every possible measure has been taken to insure strength, and the boat has such form and weight as would enable her to ram an iceberg without permanent damage to herself. The following gives some idea of the strength of her construction: keel 4 by 12; frames 2 by 2½, 12 inches center; planking, garboards 1¾-inch yellow pine; topsides 1½-inch cedar; lower bilge stringers 3½ by 4-inch yellow pine; upper stringers 2 by 6-inch yellow pine. She has 2 by 6

shelf and 2 by 6 clamp yellow pine. Decking 1½-inch pine, canvas covered. Deck beams over tank compartment 3 by 4 inches; deck beams over house 1½ by 3 inches, crown 8 inches aft and 7 inches forward.

The boat is divided into three compartments separated by absolutely watertight bulkheads. The fore cabin, in which the crew will berth, is 8 feet 5 inches long with 6 feet headroom; the storage amidships 9 feet long; engine room aft 7 feet 10 inches long with 5 feet 9 inches headroom. The fore compartment, besides the berths, will contain two water tanks with a capacity of 150 gallons, storage locker for food, and lockers for navigating instruments, books, clothes, etc.



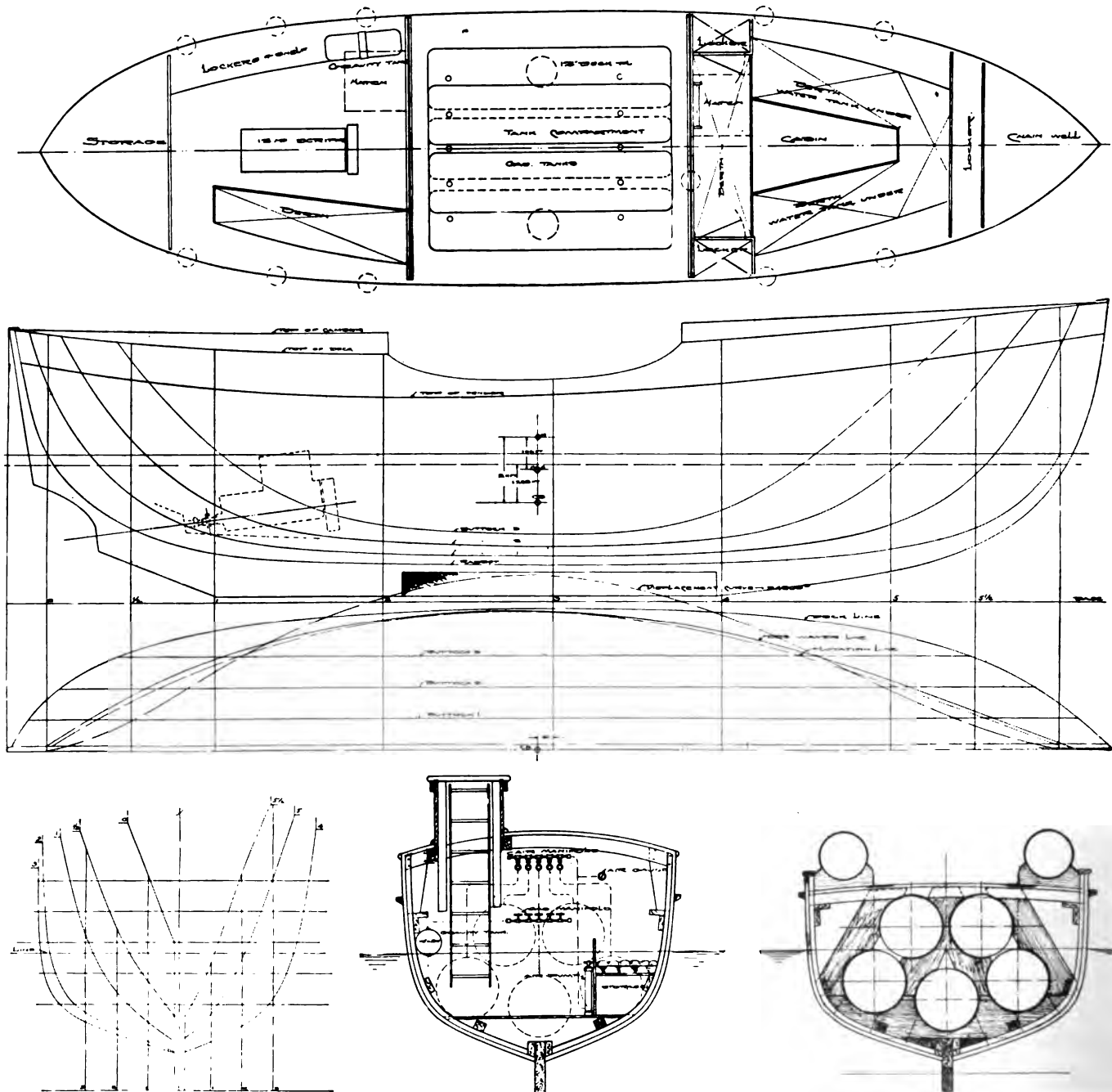
Outboard Profile and Sail Plan of Power Boat. Designed and Built by the Matthews Boat Co. to Cross the Atlantic

It will be entered by a companionway on the port side. The storage space amidships will contain five Janney & Steinmetz seamless steel tanks, nested three below and two above; they will be chocked with heavy oak stanchions so as to absolutely prevent their shifting. The after compartment will contain the engine, the auxiliary storage tank, the lubricating oil tank and the tools and spare parts. This will be entered by a square opening with coaming raised about 12 inches above the deck.

The deck will be raised over the fore and after compartments and dropped over the storage space. The amidships deck to be used for navigating purposes, and on it will be the wheel and binnacle, the crew to be protected by a weather cloth spread above the fore break. She will be steered by a 28-inch wheel carrying plough-steel ropes running through sheaves

in the waterways and connected with a yoke on the head of the rudder. The steering compass will be a 5-inch, oil float, the same that was carried on the Sea Bird in her passage across to Gibraltar last year. This will be boxed in a built-up binnacle and be lighted by electricity.

The boat will have a galvanized iron railing running fore-and-aft, and when at sea stanchions rising above this will carry a life-line. She will be powered by a 10-12-h.p. Scripps engine, driving a 1½-inch shaft carried in a copper sleeve. The size of the propeller has not yet been decided upon. It will be selected by actual trial. Besides the 1,000 gallons of gasoline carried in the storage space amidships, she will have two 100-gallon tanks on the deck and also at starting will carry 100 gallons in 5-gallon cases, making in all about 1,275 gallons. The daily con-



Arrangement Plan and Lines of Trans-Atlantic Power Boat

sumption, running at moderate speed, will be about 48 gallons, so that she will have enough gasoline to drive her for about twenty-five days. It is expected that she will make a speed, loaded, of 5 knots, and light of 6, and her average daily run will be about 140 miles.

The fuel feed plan has been carefully worked out, and is patterned after that used on Ailsa Craig in the race to Bermuda. The gasoline will be fed from the main tanks into a 10-gallon auxiliary tank in the engine room by air pressure. There will be a separate lead from each tank to a manifold fixed to the after side of the bulkhead; the manifold will be equipped with shut-offs for each line. From the manifold the gasoline will be led into the auxiliary tank and fed from that by gravity to the engine. The air will be similarly manifolded and controlled, so that there will be no pressure on the tanks except when the fuel is flowing into the auxiliary tank. This will prevent any leakage except when the pipe and manifold are being used. The deck tanks will feed direct to the auxiliary tank by gravity. This is the only safe system to use at sea. Direct gravity feed from the main tanks is unreliable, troublesome, and dangerous. By using the auxiliary tank as a settling basin you do away with the dirt nuisance, which is ever to be dreaded in rough weather.

In order to insure safety, no smoking will be allowed during the voyage. No smoking tobacco, cigars, or cigarettes will be carried, and all matches will be in the custody of the Skipper and kept under lock and only dealt out upon his order. Electric lights will be fitted throughout the vessel, and she will carry electric masthead and running lights, and telegraph lamp for night signaling.

She will carry 200 gallons of water, and stores for ninety days. She has a small rig, 32-foot mast, 25 feet above deck, on which will set a trysail, staysail and jib, to the total area of 240 feet. She will carry a squaresail and yard to use in case of necessity. The crew will consist of five, two men in the engine room and three on deck. The engineers will have a watch of six hours, and the deck crew of four hours on, and

eight hours off. The navigating instruments carried will include a Waltham chronometer, which will be thoroughly tested under the most arduous conditions. This is a new instrument which has been put upon the market, and is in a shape which commends itself to small boat purposes; and if it successfully undergoes the ordeal it no doubt will become a favorite with yachtsmen.

After reaching Queenstown or Falmouth the boat will be taken through the English Channel, calling at the different ports, and then headed for Stockholm, Sweden; after a visit at that capital she will probably go to St. Petersburg, Russia.

DIMENSIONS AND PARTICULARS

| | | | | |
|-------------------------|-------|---------------|----|--------|
| Length o. a..... | 35 | feet | 0 | inches |
| Length w. l..... | 33 | " | 2 | " |
| Breadth w. l..... | 8 | " | 10 | " |
| Breadth o. a..... | 9 | " | 0 | " |
| Draught, loaded..... | 4 | " | 7 | " |
| Draught to rabbet.... | 3 | " | 3 | " |
| Depth | 5 | " | 6 | " |
| Least freeboard, loaded | 2 | " | 6 | " |
| Freeboard, bow..... | 5 | " | 9 | " |
| Freeboard, aft..... | 4 | " | 0 | " |
| Fore cabin..... | 8 | " | 5 | " |
| Storage space..... | 9 | " | 0 | " |
| Engine room..... | 7 | " | 10 | " |
| Headroom, fore cabin. | 6 | " | 0 | " |
| Headroom, engine room | 5 | " | 9 | " |
| Ballast iron shoe.... | 1,200 | lb | | |
| Mast | 32 | feet | | |
| Mast housing..... | 7 | " | | |
| Mast, deck to truck... | 25 | " | | |
| Main-boom | 16 | " | | |
| Sail area..... | 240 | square feet | | |
| Fuel capacity..... | 1,200 | gal. | | |
| Tanks, five..... | 8 | ft. by 24 in. | | |
| Tanks, two..... | 8 | ft. by 18 in. | | |
| Water capacity..... | 150 | gal. | | |

Total displacement, including fuel, stores, and crew, about 25,000 lb.

STANDARD ENGINES FOR INTERNATIONAL DEFENDER

THESE engines are a product of the Standard Motor Construction Company's experience in engines of large powers covering a period of the last fifteen years.

"All the devices that seem novel to the average person have been used for years on all large Standard engines. By taking the component parts of the engine in detail it will be seen that, proven as they are, they are bound to share the same success that all other Standards have had.

"The carbureter is controlled by the vacuum in the inlet pipe which acts as a piston raising a damper which opens or closes, the inlet passage at the same time throwing more or less fuel tips into operation. By this method a constant and much lower vacuum is maintained at all times in the inlet pipe, which al-

lows of the charge being drawn into the cylinder at much nearer atmospheric pressure than has ever been possible by any other method.

"Vaporizers of this type, on which the Standard Company hold basic patents, were used on four 300-h.p., six-cylinder, double-acting Standard engines built in the early part of 1907 and have been in constant operation. This type of vaporizer has been used on all Standard engines of 100-h.p. and up for years.

"The inlet and exhaust valves are of the balance type with bevel seat and long piston trunk for guide. They do not lift against any of the explosive pressures. They are water-cooled in the same way that has always been in use on Standard engines.

"The engines are reversed in the same manner as all Standard engines, viz.: by sliding the cam-shaft

fore-and-aft, thereby bringing into operation a separate set of cams for the reverse or ahead motion as the case may be. By this method the timing is always correct and cannot be affected by wear, as in other methods. This device was patented by the Standard Company some time ago.

"The cylinder oiling is taken care of by a pump, which is timed with the engine so that when a piston is in a certain position a cam causes the plunger to inject a stream of oil into the cylinder oil groove at two points at a very high pressure. This makes the cylinder oiling positive, as there is no other course for the oil to escape.

"In 1906 the Standard Motor Construction Company equipped a 500-h.p., double-acting, six-cylinder engine with a two-point system of ignition; that is, two spark plugs firing simultaneously in the same combustion chamber. They were of the mechanical make-and-break type and were a big improvement over the single ignition system.

"The Standard Company, having devised a magnetic make-and-break spark plug, in the early part of 1907 installed this two-point ignition and their magnetic plugs on their four-cylinder engines of the double-acting type of 300-h.p. These engines are still in operation and giving perfect satisfaction.

"Practically all racing machines on land, water or in the air have adopted this system of ignition since. The magneto manufacturers have made it one of their standard equipments, and in every case it has given a large increase in horsepower by having the entire charge ignited when the piston is at the top of its stroke without having the piston working against the extra pressure produced in the compression stroke by the great advance of spark needed to accomplish the same results.

"This form of ignition having been devised and used by the Standard Motor Construction Company years before any other manufacturer realized the great advantages to be gained by this system, speaks well for the originality of design in all Standard engines.

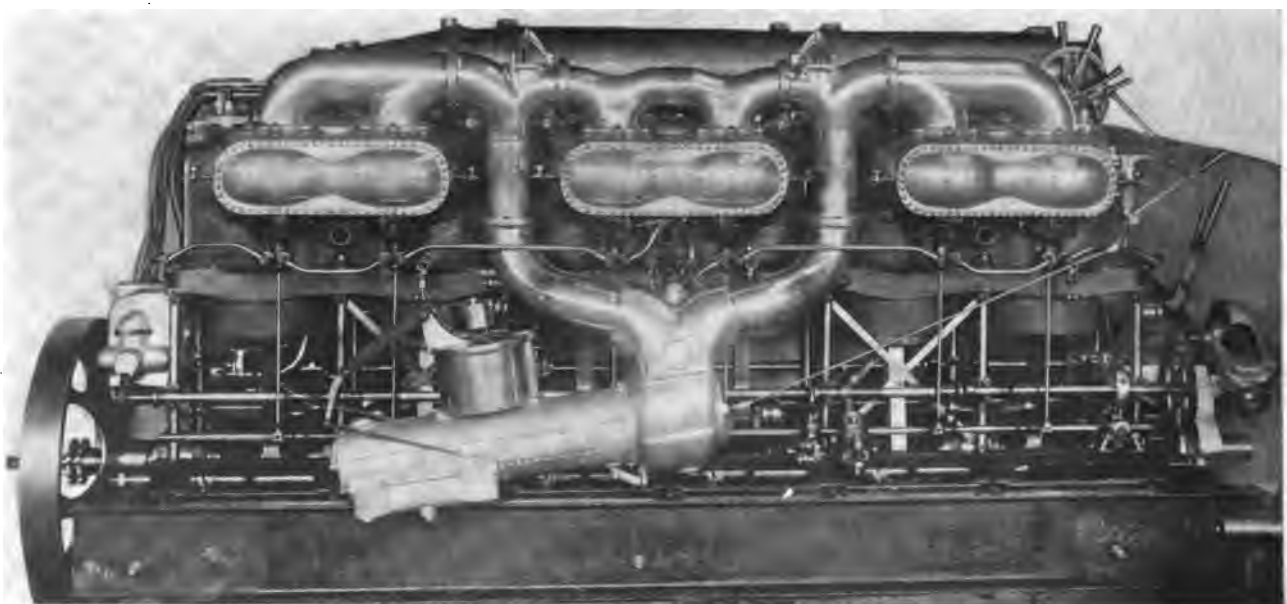
"On the racing engines now under construction, the Standard Company is using three-point jump-spark ignition. A Bosch high-tension two-point magneto furnishes current for two plugs in each cylinder. The other plug is operated by battery and a separate timer, so being an independent system. The engine is started on the battery, the magneto taking up the work as soon as the engine is running. Owing to the lag in the current of the two separate systems, to get results from all three plugs a tachometer has been placed near the control lever, by which (after having advanced the magneto) the operator can notice the increase of revolutions as he slowly advances the spark supplied by the battery. Perfect synchronism in the magneto spark is assured on the one magneto designed to supply the spark for both plugs at the same time.

"The main bearings, crankpin bearings, wristpin and thrust bearings are all oiled by a pressure system flowing through the crank-shaft. There is always an excess amount of oil flowing from the bearings which carries off any heat which might be developed. This oil is taken from the oil pan through a cooling system and recirculated.

"This is the first time the Standard Motor Construction Company has taken up the racing question since the racing rules limiting the length of racers to 40 feet barred the racer Standard from competing.

"Looking back at the records of Standard, which had the regular stock 300-h.p. double-acting engine with no attempt to reduce weight, it looks as if the new boat, with two of the same reliable design aggregating 650-h.p. at a weight which has only been possible by the use of metals of the extremely high strength developed in the last few years, will repeat the performance of Standard.

"It is evident that these new engines are not a lot of untried new ideas, but simply the builder's time-proven practical design consolidated into one engine running at what has been considered the speed at which the best propeller efficiency could be obtained for this type of service."



Standard Engine. Designed and Built to Defend the British International Trophy

ROUND THE CLUBHOUSE FIRE

YOU will find in this issue the plans of a small power boat built for the purpose of voyaging across the Western Ocean. She is not by any means a speed machine, but she will no doubt, if nothing happens to stop her, beat the small-boat record for the passage between New York and Queenstown. It is impossible to build a heavy-powered boat and employ her for the purpose, as the fuel problem stands rigidly in the way. A large boat and a small engine are the only solution. The smaller the power the larger the number of miles you will get per gallon of fuel. With a 3-h.p. you can get about 6 miles, with 12-h.p. about 3, and with a 50-h.p. about one mile per gallon of fuel, the relative speeds being 3, 6, and 9 knots. The tankage required, 500, 1,200 and 3,000 gallons. This weight of fuel requires a bulky hull to burden it, which means slow driving in fine, and no driving in bad. The drawback to small power is that when you get a good chance it is no advantage, as you cannot speed up, and what is lost in head weather cannot be rewon when things come aft and smooth. On a small vessel it is no use wasting fuel plugging into bad water, as the distance made will not anywhere near pay for the fuel burned.

* * *

The one constant danger in a voyage of this kind is fire, and every care should be exercised to prevent it. It is all very well to carry extinguishers, but prevention is the best fire-fighting device. Nine-tenths of the fires on boats are caused by smoking, and in all races where boats are taken offshore and out of sight of land and each other, smoking should be absolutely forbidden. If I ever go another race offshore there will be no smoking. Those who can't give it up for a few days can stay ashore. Certainly a man can forego tobacco for a day or two, to safeguard the lives of others even if he does not value his own a pipe's worth.

* * *

The Bermuda Race for the Bennett Cup will be started on July 27th, from Philadelphia, the Yachtsmen's Club having taken hold of it. This club is one of the few really live organizations in the country and has done more to boost yachting in that locality than all other clubs that have ever existed between the North Pole and the Equator. I have no hesitancy in saying it is the most alive crew of real boat men in the world, and because why, they are the prime pickings out of a dozen other clubs. I suppose in time the craft will pick up a coat of barnacles same as all organizations do, but let us hope never enough to cut down her speed. I wish some of our other Eastern clubs would get inoculated with some of the Yachtsmen Club serum, but many are past reviving—they are dead three times over.

* * *

Was there anything ever more shameful and disgraceful than that Titanic investigation by a Senate Committee? To turn a terrible disaster like the sinking of that ship into a farcical performance for the purpose of gaining cheap popularity and pleasing a lot of ghouls and gawks was bad enough, but to take men and women who had escaped, overwrought and

broken by the strain and losses, and subject them to a lot of unnecessary and ignorant questioning is worse than criminal—it is ridiculous. To be questioned at such a time by men who know about ships and ship life would be hard enough, but to be put to the rack by an ignoramus whose questions showed he knew nothing about vessels or things belonging to their voyaging, was not only cruel but insulting. Such investigations are necessary, we will admit, but they should be made by men who are experts, and not by ignorant landsmen. It is patent to every seaman how the accident happened and no amount of questions could make it clearer; but how can a landsman understand such things? Such knowledge is only gained in one place; you have to have lived with the ship through the long nights and days, to have had her life in your hands, and to have fought with her the gales, and faced year after year the perils of ice and fog. No landsman can comprehend. Then why put such to question men who know? Because it is part and parcel of our silly method of running human affairs.

* * *

For centuries, in fact, back to the dawn, seamen have been debarred from directing and controlling their own interests. Their calling made it impossible for them to gather and make laws for their own people. Consequently the directing of sea life has been in the hands of landsmen, who, ignorant of the needs of the marine and the mariner, have hampered and misdirected the development of shipping by absurd and unjust legislation. A specimen of this sort of folly are our Admiralty Courts. Our courts are a joke, and no foreign shipowner enters them if he can possibly help. Judge counsel and jury, entirely ignorant of nautical affairs, trying collision cases! I once heard two lawyers, the judge and a witness arguing as to what was a fair wind, and all of them were wrong. One of the justices who sat in the British Court of Admiralty, with a picture of Vigilant before him, called the yacht a schooner. Upon my explaining it was a sloop, he said, "Oh, I thought all American racing yachts were schooners." But this is on a par with all our judicial folly. We have judges and lawyers trying business cases who have never been in business and are ignorant of business methods and business ways. To try a collision case intelligently and justly, the judge and jury should be seamen or men who have been to sea, and could understand the evidence. One of these judges decided that a steam vessel had the right of way over a rowing boat. If he had ever been in a rowboat with a steamer bearing down on him, he would never have handed down such a ridiculous decision. Another sample of this folly is our putting in as Secretary of the Navy some backwoods lawyer, a man who probably never saw a ship until he landed in Washington. One of these misfits, a kind-hearted old fellow from Indiana, was shipmates with me. He knew absolutely nothing about ships or the sea, but had to have a berth, and as the Navy was the only thing left they pitched him into it. He used to escape the naval officers and seek information and consolation by gaming with me. The

one great nautical adventure of his life was a voyage made when a lad down the Ohio in a flat-boat.

* * *

But there are few landmen who don't know all about the sea and what ought and ought not to be done to make voyaging safe upon it. The papers are full of ridiculous suggestions for safeguarding the lives of passengers devised by men who have frequently been as far as Coney Island or perhaps once a year to Fall River. Also very ingenious methods for apprehending the presence of icebergs. This humbug is ventilated in the papers every time there is a disaster. Another thing is the prevailing belief widespread that vessels do not sink to the bottom in deep water. A dozen people have asked me about that, and half of them didn't believe me when I told them a vessel went right to the bottom no matter how deep the water. Everything that is heavier than water sinks to the bottom no matter whether it weighs an ounce or a ton. You yourself live at the bottom of an ocean of air, and know by experience that whatever is heavier than air comes to earth, which is the bottom of the atmospheric sea. What is true of an ocean of air is true of an ocean of water. Another widespread fiction even held by many seamen: that there is a tremendous suction when a vessel sinks. There is nothing of the kind. As a vessel goes under the surface there is an inrush to close up the vacancy, but there is no suction after the sinking body is under the surface. If a vessel was drawn down by force there would be a suction; but a sinking form cannot sink faster than the water is displaced by its weight, and therefore, water being a dense medium the fluid must close in behind simultaneously with its displacement before. I have stood on the deck of a sinking craft and gone under with it, and instead of a suction there is just the opposite—an upward rush that makes it impossible to sink with a vessel unless you cling to her. A lifeboat on the deck of a vessel would float clear if the ship sank under her, so would a cask or a man or anything floatable.

* * *

Death has cut a terrible swath through our field this Spring and we have lost several dear friends and tried shipmates. One after one they pass, like home-bound ships dipping below the horizon to be seen no more; only the half saddening memory remains lying like a whitening wake growing fainter and failing until the waves of time and toil roll in and obliterate. Dear old Commodore Meyer of Bermuda is gone, and I cannot tell you what a loss he is to all of us who knew him. What a loss to Bermuda and the town of St. Georges. Always first in everything, especially in doing a kindness, hospitable and a splendid sportsman. Captain Meyer had led an adventurous life, having served during the Civil War in a Rhode Island cavalry regiment. He was afterwards employed in bridge engineering, and then went to Bermuda, where he was engaged in the shipping and coaling business. But he was never too busy to look out for the visiting yachtsmen and to do all in his power to make their stay at St. Georges pleasant. They certainly will miss him. I am also sorry to chronicle the death of Mr. Bowen, of the Fay & Bowen Company, an old friend and supporter of THE RUDDER. Mr. Bowen was greatly interested in the two-stroke type of engine and its development was largely due to his genius and industry. Another who is gone is Mr. Fred. Reid, who

organized and pushed to success the Waterway League of New York. Mr. Reid was an enthusiastic and untiring worker. His death is a loss to the league and to the sport in general.

* * *

I am sorry to say that we had to stop publishing *The Cruiser* on account of want of support. It seems too bad that enough yachtsmen would not come forward and help support the little magazine. The tales in it were certainly of interest, being cullings from the best of bygone days as well as many good modern yarns. It was in a form that made it handy for reading. I frequently pick up the back volumes and read the stories of the sea, of its wrecks, disasters, and voyages in near and distant waters. What kills in this world is not opposition but indifference. It is the indifferent who tie my hands and cramp my efforts in behalf of the sport. Well might Harold exclaim to his henchman that morning at Stanford Bridge, when, looking out over the plain, he saw Tostig's horde of Danes pour out from their camp, "Oh, for the thousands of Englishmen who are to-day seated by their hearthstones." So it is with my work. Had I the support of all the yachtsmen what a fight we could put up. But there are thousands, the selfish and indifferent, who do nothing to help and leave the few to fight the fight that benefits all.

* * *

The thrilling picture of *Sea Bird* being laid-to in the Gulf Stream, a masterpiece of sea painting by Warren Sheppard, will be ready for issuance October 1st. This is a companion picture to *Spray* and *Half-Moon* and will frame to go between these two beautiful marines. The number of these pictures will be limited to one impression and then the plates will be destroyed, thus giving the production a value. A copy will be mailed to each person sending a subscription or renewing a subscription. If you are a subscriber send in another man's name with \$3 and we will put your name on the list for a copy of *Sea Bird*. Don't wait until too late; get your name on the list at once. This picture is not for sale; it can only be had by subscribing or sending a subscription. The supplement this month is a painting by Mr. Sheppard for Mr. Alexander Treuberg, of St. Petersburg, Russia. It is called *Flying Spray*. A number of Mr. Sheppard's marines will be on exhibition in the new Toledo Art Galleries during the Summer, having been loaned by THE RUDDER.

* * *

Please, when you buy anything from the advertisers or when you write to them mention that you are a Rudderman. Numbers of you forget to do this. And don't buy from people who don't or won't advertise in this old sheet. The advertisers support the magazine, and you ought to help support them. Our advertisers are the very cream of the trade, and have done a lot to help the Oldman keep the packet full and bye, so please spend your money with them and not with the picaroons and wreckers who hover in the wake. We do our best to keep our advertising pages clean; you won't find any beats and crooks using them. We don't have as many pages of advertising as some other people, but what we have we can stand behind and swear by. If you are in THE RUDDER it means you are honest and respectable, and that you are not forced to keep company with blacklegs and cheats, who swindle the public.

THE RUDDER

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June 1912
Vol. XXV



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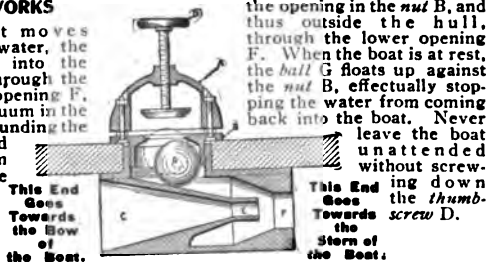
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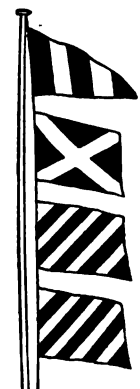
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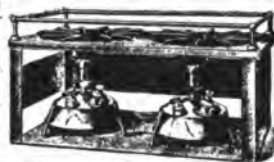


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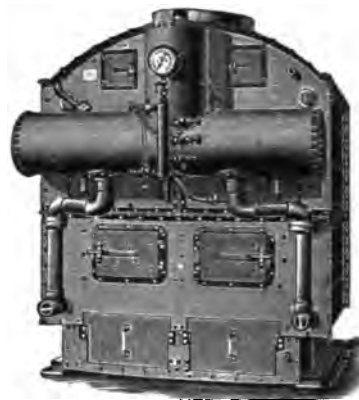
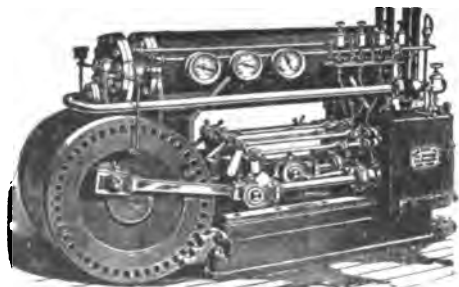
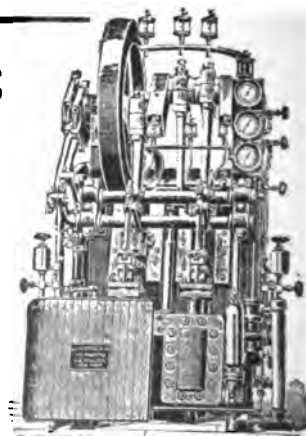
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RIGID****REQUIRE NO ARTIFICIAL COATING. DO NOT SOIL HANDS NOR SAILS. TESTED BY TWENTY YEARS SERVICE ON SALT WATER.****"PROVIDENCE" LAUNCH
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Providence, R. I.****Electric Metal Polish**Used by Engi-
neers, Sailors and
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first-class polish.**CLEAN, QUICK, LASTING,
NO DIRT, NO GREASE****SAMPLE UPON APPLICATION***For sale by Grocers, Yacht Supply, Hardware,
Harness Dealers and all First-class Stores***Manufactured by****Factory, Arlington, N. J. J. WESLEY EDMONDS & SON, Office, 214-A Franklin St., N. Y. City****GILLESPIE'S
Monarch Spar Varnish
FOR DURABILITY**Send for free booklet B on Refinishing Yachts and Motor Boats
CHAS. H. GILLESPIE & SONS JERSEY CITY, N. J.**Don't neglect your motor for want of
lubrication; use****DIXON'S GRAPHITE LUBRICANTS***Write for free descriptive booklet***JOSEPH DIXON CRUCIBLE COMPANY****Jersey City, N. J.****The Allen Dense-Air Ice Machine****contains no chemicals. It is placed in the engine room, while the ice-making box and meat rooms are at distant places of the steamer****STEAM YACHTS—**Lorena, Constant, Riviera, Emeline,
Apache, Electra, Nourmahal, Josephine, Virginia,
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"Wonder-paste" is a wonder worker on boats. It is a **fireless torch** that does not burn or char the wood, lift the grain, discolor or otherwise make useless work. Applied with brush or sprayer.

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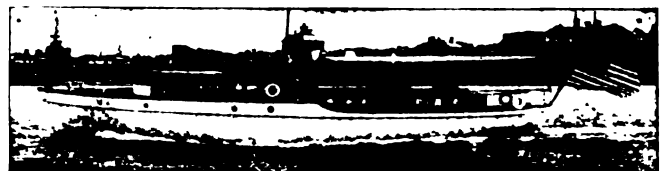


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Guaranteed to stand under the most trying circumstances, as on yachts, boats and vessels of any kind for either inside or outside work, also front doors, store fronts, wagons, etc.

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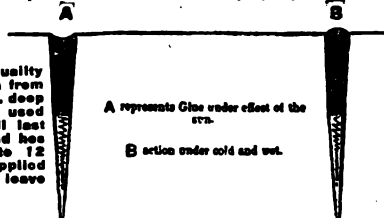
C. A. WOOLSEY PAINT AND COLOR COMPANY

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APPLICATION OF MARINE GLUE TO DECK

The reduced Section of Deck (see cut) shows the appearance of the glue in the seams when the planks are under expansion and contraction. The flexibility of the Glue is one of its most valuable qualities, as it allows the timbers to contract and expand, still retaining its great adhesive power to the edges of the plank.

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14 lbs. Jeffery's Extra Quality Marine Yacht Glue will run from 200 to 250 ft. of seam 1/4 in. deep by 1/4 in. wide. If properly used and not overheated, it will last 4 to 6 years in a seam, and has been known to last 10 to 12 years. When carefully applied to a dry deck it will never leave the sides of a seam.

Send for directions for use, etc.

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THE PAINT you have used so long, always reliable when properly applied. 47 years the leader.



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for wooden Vessels' bottoms, prevents boring of worms, and all marine growth.

Racing Compound, for wooden yachts' bottoms, bright and smooth.

Priming coat A. **Laczone,** Finishing coat B,

for bottoms of IRON and STEEL Vessels of every description, to prevent corrosion and all Marine growth. THE GREAT SPEED INCREASER.

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8 Highest Medals. Manufactured only by **TARR & WONSON, Limited,** Gold, Silver & Bronze. Beware of Imitations. **GLOUCESTER, Mass., U. S. A.**

THEY EXCEL ON EVERY POINT.

ELASTIC SEAM COMPOSITION

For deck and all other seams

Put up in 12 1/2, 25, 50 and 100 lb. Kegs. White, Gray and Yellow, Black and Special Colors, 15c per lb.; 1, 2 and 5-lb. cans, 18c per lb. 2-lb. trial package, with Seam Paint, 50c; 5-lb. trial package, with Seam Paint, \$1.25.

ELASTIC GLOSS YACHT WHITE

The whitest gloss white in existence. Works as smooth as oil paint. Dries in from 4 to 8 hours. Withstands acids and gases. Can be touched up any time without showing. One coat over a coat of *Elastic Flat Yacht White* will retain its gloss all season. Price \$4 a gal.; half gal. \$2; quart \$1.

ELASTIC FLAT YACHT WHITE

It is the whitest yacht white. In spreading and covering unsurpassed. Dries in two to four hours. Withstands acids and gases. Withstands hard usage and scrubbing. Two coats last all season. Price, \$3.00 a gal.; \$1.60 a half gal.

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| ELASTIC SPECIAL BRIGHT GREEN AND RED COPPER PAINT | \$3.00 per gal. |
| ELASTIC SPECIAL BRIGHT GREEN BOOTTOPPING | \$1.50 1/2 gal. |
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H. B. FRED. KUHLS, Sole Manufacturer
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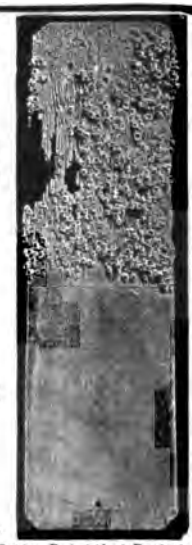
"New Jersey" Copper Paint

THE BEST AND MOST USED (SPECIAL RED)

Yacht Copper and Green Copper for Yachts

YACHT WHITE AND YACHT BLACK

MANUFACTURED BY
HARRY LOUDERBOUGH
PROPRIETOR
NEW JERSEY PAINT WORKS
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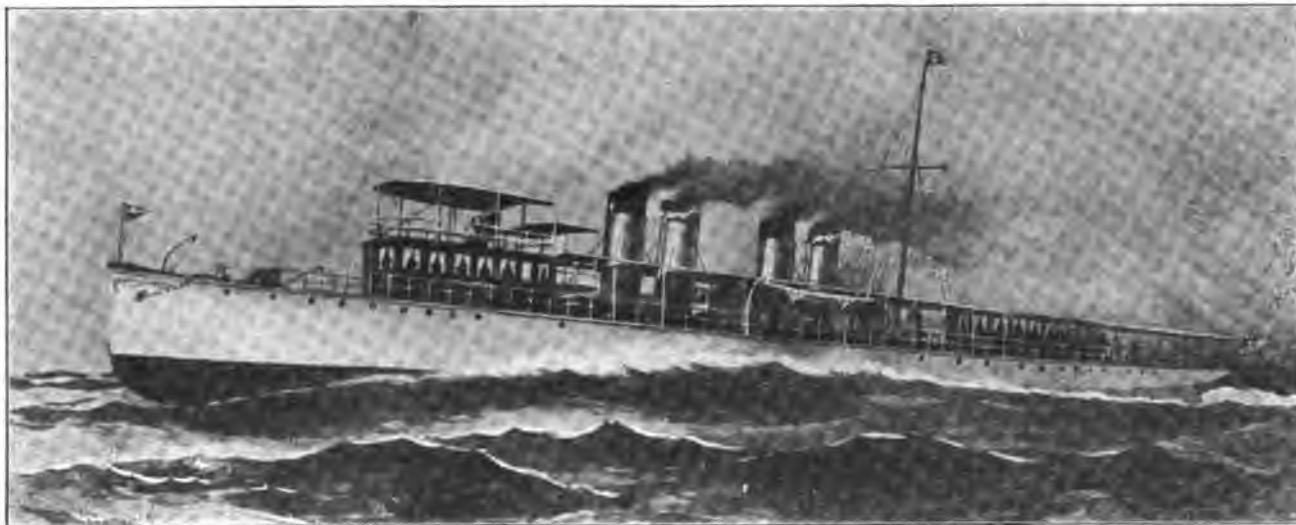


A Copper Paint that Protects

STEBBINS' COAST PILOT, By Mail, \$1.25

THE RUDDER PUBLISHING CO., 1 Hudson Street, N. Y.

Don't Paint Your Boat—Enamel It



CHAS. A. CONK, Master

Steam Yacht Sovereign

M. C. D. BORDEN, Owner

The Sovereign was designed by Mr. Chas. L. Seabury, and built by the Gas Engine & Power Co., and Chas. L. Seabury & Co., Con., at Morris Heights, New York City. She has a guaranteed speed of 35 consecutive miles per hour, and is the fastest yacht in the world.

The new Sovereign is 165 ft. over all, 158 ft. on the water-line, 16 ft. beam, with a draught of 4 ft. 6 in. From the illustration it will be noted that the craft has a very rakish appearance, and when in commission, will be an exceptionally attractive looking yacht; the four smokestacks giving the vessel a distinctiveness that no other pleasure boat in this country possesses. The new Sovereign is

Finished with



The Finest Finish for a Fine Yacht



Captain Charles A. Conk, who is Master of the "Sovereign," says, "Enamolin is good enough for me."

The following letter speaks for itself:

LETTER WRITTEN BY THE OWNER AND SKIPPER OF SEA BIRD
TO ONE OF HIS READERS ABROAD

My dear Mr. —

Many thanks for your good letter of November 8th, and I was glad to hear that you are alive and still able to work out to windward.

In regard to what SEA BIRD was painted with, she wasn't painted, she was enameled.

When we were fitting her out Goodwin asked me what he should paint her with and what color.

I said, "Those Calman people have been blowing about that Enamolin of theirs being a good holdfast, suppose you slap on a coat of that and we will give it a good tryout." He did.

While she was alongside the quay at Gibraltar, one of the Rock yachtsmen said to me, "You better dirty and scratch SEA BIRD up a bit, she looks so fresh, white, and clean, the Italians will never believe she has crossed the Atlantic."

The Enamolin looked as good when we got to Rome as it did the day we put Providence in our wake.

On the steamer coming home several of the passengers asked me if she had been repainted in Italy.

Glad to hear the engine reached you in good shape, and that your boat is so well along. Don't forget the photos when she is afloat. With best wishes for a long life and plenty of good sailing, I am,

Yours,

DAY.

Hundreds of Yachts Finished With ENAMOLIN Went Through Last Season in Perfect Shape Without Repainting

ENAMOLIN is a pure white ENAMEL, which dries free from brush marks, laps or seams. It positively will not check, peel, flake or blister. It will not discolor at the water-line from lying in dirty waters. When soiled from coal dust, etc., it may be scrubbed with soap and water without injury. ENAMOLIN may be applied over the old paint now on your boat, without scraping or burning the old paint off.

WE GUARANTEE ENAMOLIN TO WEAR PERFECTLY WITHOUT REPAINTING DURING THE SEASON

Send for catalog containing color cards, testimonials, price list, etc.

EMIL CALMAN & CO., Est. 1850 98 William St., New York

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8 DAY TIMEPIECES

FOR MOTOR BOATS AND YACHTS



A Waltham Triumph!

An Innovation in 8 Day Timepieces!

The only 8-Day Timepieces adjusted to temperature and having 15 jewels. Built to Waltham Standards, which means that they are standard as gold and keep standard time under all conditions. They stand the thump and vibration of motor boating. Run 10 days with one winding; winding indicator gives 3 days' notice of necessity of rewinding. Case is proof against moisture, dust and theft.

Made by the Waltham Watch Company—for three-quarters of a century the acknowledged leaders of the world in the manufacture of fine watches.

For sale by all jewelers and dealers in marine supplies. If not obtainable, write us.

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RELIABLE

NEW CHEMICAL FIRE EXTINGUISHER

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Always Ready

The Latest, Largest and Best liquid extinguisher on the market for Gasoline, Oil and Electric Fires, and especially adapted for Boat and Automobile use. *Made in brass only. PRICE \$6.00.*

C. D. DURKEE & CO., 2 and 3 South St., New York

Send 20 cents for our mammoth catalog



Valspar Bronze Bottom Paint

An anti-fouling bottom paint which gives a clean, smooth, speedy surface.

Valspar Bronze Bottom Paint is made of Valspar and pure French leaf bronze, which will not harden or turn green in can. Ready to use after thorough stirring.

To get the best results from Valspar Bronze Bottom Paint, apply it directly to the wood, stirring it thoroughly and continually while using, and brushing each coat out well. Use three coats and rub the last coat lightly with fine sand paper and you will get the smoothest kind of a surface.

One Experience

MESSRS. VALENTINE & COMPANY.

DETROIT, MICH.

DEAR SIR:—This spring I used your Valspar Bronze Bottom Paint on my yacht Ethel. She had previously run into place in several races, but in the next one after application of the Bronze Bottom Paint, which was in very light winds, where every little point may prove a big factor in scoring a win, she was returned the winner by eight and one-quarter minutes. This was on May 30, 1911, Detroit Yacht Club.

On June 17, 1911, in another just such a race of the Detroit Yacht Club, in light winds, but against a larger field, of the best outside, as well as the best local boats, the story was exactly the same, the time of finish in advance of next nearest being nearly as great.

I was then persuaded to try something else for the next race, and in that and several others she has not shown so well, so it is needless to say I shall return to the use of your Bottom Paint.

I should also say that during the two months your Bottom Paint was on, the bottom remained entirely free of all fouling, which I consider very good.

(Signed) DR. T. B. ALDRICH.



VALENTINE'S MARINE PRODUCTS

VALSPAR—a really waterproof varnish.

VALSPAR BRONZE BOTTOM PAINT—a perfect anti-fouling compound.

VALSPAR ENAMELS—water and weather resisting.

VALENTINE'S YACHT WHITE—gloss or flat finish.

VALSPAR YACHT BLACK—semi-gloss, will not turn gray.

VALSPAR ALUMINUM PAINT—does not chip or peel in the weather.

VALSPAR BRASS POLISH PRESERVATIVE—to protect polished brass.

VALSPAR BOAT TOPPING—red or green.

CELOX WOOD or METAL PRIMERS and FILLERS.

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Name _____
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Send me, free of cost,
a copy of your
marine
catalog

QUARTER-DECK TALK

EAST GREENWICH Y. C.

The races that are planned by the East Greenwich Y. C. for the season of 1912 are as follows: Open regatta under rules of Narragansett Bay Yacht Racing Association, June 1st. Club regatta, also special race for one-design sailing class, June 15th. Also club regattas on the following dates: June 29th, July 13th and 27th, August 31st, Sept. 14th and 28th; on August 17th the club will hold an open regatta in connection with Ladies' Day.

There have been a number of new boats added to the fleet of the East Greenwich Y. C. quite recently. These are the auxiliary yawl Sivad, 72 ft. over all, owned by F. T. Rogers; Myosotis II, 35 ft. over-all length, owner Nelson McIntosh. Among the new boats which will soon be added to this fleet are Topaz, a 43-ft. cruiser, designed and built by Frederic S. Nock, of East Greenwich, R. I., for J. Richmond Fales, and the 60-ft. coast cruiser Artmar, designed and built by Mr. Nock for C. M. Dunbar. There are also the 30-ft. raised deck cruiser Teddy B, owner Thomas M. Allen, and the 32-ft. auxiliary sloop Alletse, owned by Elmer Lindberg.

At the boat yards of Frederic S. Nock, East Greenwich, R. I., a special power tender has just been completed for W. S. Milne, of Cleveland, Tenn., and is to be carried on the davits of his yacht Ocoee. This boat is fitted with a Fay & Bowen engine and should make an excellent type of power tender with unusual carrying capacity.

GREAT LAKES POWER BOAT LEAGUE

The third annual regatta of the Great Lakes Power Boat League will be held under the auspices of the Hamilton Y. C., at Hamilton, Can. The races will extend over a period of three days, from August 8th to 10th inclusive, and the program is as follows: August 8th, 5-mile race for boats with 2-cylinders or less; 2-mile free-for-all; 10-mile handicap race. August 9th, 20-mile races for the following classes: 40 ft., 26 ft., and 20 ft., as well as a 20-mile race for the 40-ft. class open to displacement boats only. August 10th, 14-mile race for cruisers; 20-mile race for the 32-ft. class, and the Annual International Power Boat Handicap race of 20 miles, open to any boat capable of 15 miles or better. The final event of the meet will be the Great Lakes Power Boat Championship, the distance of which is 25 miles.

An interesting feature in connection with the selection of Hamilton for this race meet is the fact that the course over which the boats will compete was accurately surveyed on the ice last Winter by the Dominion land surveyors. The Scripps Reliability Cruise will also finish at Hamilton on August 7th, being scheduled to leave Detroit on July 30th, and reporting at the following places en route: Toledo, Rocky River, Erie, Buffalo, Dalhousie, Charlotte, Niagara, and Toronto.

YACHTS CHANGE HANDS

The Hollis Burgess Yacht Agency has sold the 35-ft. water-line Lawley-built sloop yacht Jane, owned by Robert A. Boit, of Boston, to Hon. William Caleb Loring, of Boston, who will use her on the Maine coast.

The same Agency has sold the 40-ft power boat Scamp, formerly owned by John D. Crosby, of Boston, for use on the Maine coast; the Hull One-Design Class 15-ft. knockabout Arab, owned by John Griffin of the Mosquito Fleet Y. C., to Grosvenor Calkins, of Boston, for use at Gloucester, Mass.; the 30-ft. power boat Puffing Pig, owned by H. P. Benson, of Salem, Mass., to a prominent member of the Boston Y. C.; and the 33-ft. water-line sloop yacht Lady Mary, owned by Gifford K. Simonds, of Fitchburg, Mass., to Philip L. Saltonstall, of Boston. Lady Mary is a Lawley-built cruiser formerly owned by Senator Nelson W. Aldrich, of Rhode Island, and will be changed by Mr. Saltonstall to an auxiliary for use on Vineyard Sound.

The same Agency has also sold the crack Herreshoff 25-footer May Queen, owned by J. C. McCoy, of Providence, R. I., to J. S. Crosby, of New York, who will race her on Long Island Sound; the 40-ft. power boat Hessian, owned by Commodore James A. Boyd of the Savin Hill Y. C., to George B. Morrill, of Portland, Me.; and the fast Sonder boat Eel, owned by Commodore E. W. Clark of the Philadelphia Corinthian Y. C., to Ernst W. Dutton, of Brookline, Mass.

OCEAN Y. C. OFFICERS

At a recent election of the Ocean Y. C., of Stapleton, S. I., the officers selected for 1912 were as follows: Commodore, Caspar G. Laline; vice-commodore, Charles Hamilton; rear-commodore, Leo Rostetter; fleet captain, Wm. Spiegelberg; treasurer, J. Schmeisler; financial secretary, John Schron; corresponding secretary, F. G. Almstaedt; measurer, James Dunn. Their first event of the season will be a 35-mile race around Staten Island to be held on May 30th, Decoration Day.

EAU GALLIE Y. C. OFFICERS, 1912

The Eau Gallie Y. C., of Eau Gallie, Fla., have elected the following officers for the coming year: Commodore, J. A. Carr; vice-commodore, C. C. Booth, M. D.; fleet captain, W. J. Redington; secretary, J. E. M. Hodgson.

PALMER'S SALT-WATER SOAP

Most of you know how ordinary soap acts when used with salt water. It is not very satisfactory. For this reason yachtsmen will appreciate the merits of Palmer's salt-water soap. This is an antiseptic and cleansing soap which may be used for all purposes, even to massaging the scalp, and which has tonic effects which are convincing and permanent. The soap lathers quickly and profusely with salt water, and has been prepared with great care to prevent undue alkalinity. The use of this soap removes all objections which have been raised to using salt water for bathing, as it provides a good soap which will saponify and lather, no matter how salty the water may be. It is guaranteed to be absolutely safe, convenient and effective as an antiseptic; it removes every impurity from the hands or face, cleanses thoroughly and combines the purifying salts of the ocean with a soap base. This soap has been adopted by a great many seashore hotels and baths; among them Reuter's baths and the New Hygeia pool at Atlantic City; both of these establishments use this soap exclusively. The Asbury Park baths and the Ocean Grove baths are using this soap after a thorough test. Palmer's salt-water soap is manufactured by the Morgan Drug Company, of Atlantic and Kingston Avenues, Brooklyn, N. Y. This company also manufactures Palmer's "Skin Success" ointment, which is exceedingly effective in case of sunburns, freckles or tan.

LITTLE HASTE

Mr. Hollis Burgess, the Boston yachtsman, has purchased the 21-ft. water-line centerboard sloop yacht Little Haste from A. D. Cummins, of Philadelphia. She left Philadelphia last Tuesday on deck of the barge Ruth and has just arrived in Boston.

Little Haste was built for Thornton K. Lothrop, Jr., of Boston, and won the championship of the 21-ft. Massachusetts Bay Cabin Class in 1902. She is 39 ft. 10 in. over all, 10 ft. 6 in. breadth and 3 ft. 6 in. draught, and has a heavy weighted centerboard.

She was afterwards purchased by Fred B. Thurber, of Providence, R. I., and was raced by him on Narragansett Bay. In 1909 she was bought by A. D. Cummins, of Philadelphia, who used her at Atlantic City, N. J.

Mr. Burgess will race Little Haste in Class A of the Interclub Yacht Racing Association of Massachusetts, and it will be interesting to see how she performs against keel boats, as keel boats have heretofore shown a marked superiority over the centerboard boats.

NEW CATALOG

One of the finest power boat catalogs published this season is that of the Cleveland Auto Boat Manufacturing Company, Cleveland, Ohio, manufacturers of the Auto Craft line of power launches.

It is not only an exceptionally handsome book, in keeping with the high quality products of this company, but is a book of great interest to any prospective purchaser, owing to the plain and clear way in which the outfits offered for sale are shown. Large and distinct photographs, showing both exterior and interior of the boat in detail, are printed as well as a number of line drawings. The specifications are given complete, so that there may be no doubt as to just what the purchaser will get for his money.

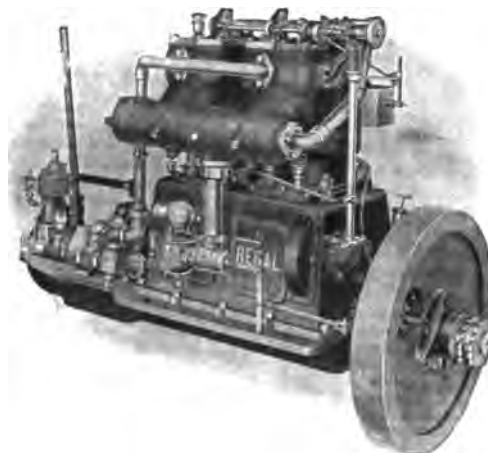
It will pay anybody interested in the purchase of a power boat to obtain a copy of this catalog.

TWELVE YEARS' SUCCESSFUL BUILDING BEHIND EVERY ENGINE

REGAL

Marine Engines

Four-cycle. Light, medium and heavy-duty engines. One to four cylinders. We could cut 25% from cost but it would be mighty poor policy. Regal engines have a standard that calls for the best of material and workmanship.



14-H.P. HEAVY-DUTY MARINE ENGINE



This means an engine that will last for years—and in the end is very much the cheapest engine to own. There are engines that sell for less money, but they are not *cheaper*. The difference is in rating, material and workmanship. Write for new catalog, just out.

REGAL GASOLENE ENGINE CO., 59 West Pearl Street, Coldwater, Michigan

EAGLE ENGINES

3 Distinct Types, High-Speed, Medium-Speed and Heavy-Duty Types, 18 Different Models, 1-2-3-4 Cylinders, either Jump-Spark or M & B Ignition

WATERPROOF IGNITION



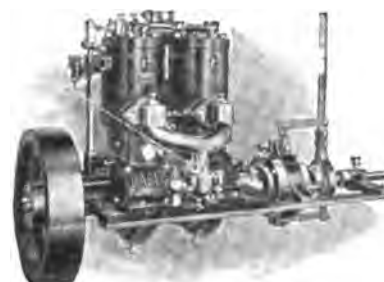
HIGH-SPEED MODEL

JUMP-SPARK IGNITION



MEDIUM-SPEED MODEL

M & B IGNITION



HEAVY-DUTY MODEL

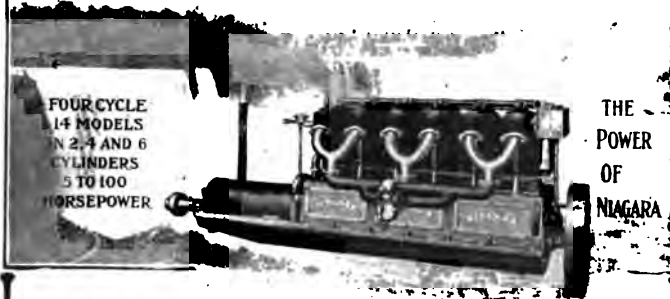
All motors of two-cycle types. Prices the lowest. Equipment the best. **Export** trade a specialty. Factory occupying 100,000 square feet, 20 minutes from New York Harbor. Immediate shipments all sizes. Correspondence in any language. Free catalog on request.

REAL AGENTS WANTED

THE EAGLE COMPANY, 98 Warren Street, Newark, New Jersey, U. S. A.

NIAGARA MOTORS MEAN POWER

DURABILITY—ECONOMY—SATISFACTION
FOR CRUISING, RACING, FISHING, FREIGHTING



WINNERS

NOT ONLY

OF TROPHIES AND CASH PRIZES BUT OF HIGHEST
COMMENDATION THROUGHOUT THE WORLD

NIAGARAS RECENTLY WON FIRSTS

AT AUCKLAND, N. Z., 25 h.p. in Mr. W. S. Luxford's 38x8.6 cruiser
AT SYDNEY, AUS., 90 h.p. in Mr. C. E. Woodward's racing hull
AT SAN FRANCISCO, 45 h.p. in Mr. J. Fletcher's 32x5
AT DULUTH, MINN., 65 h.p. in Mr. E. S. Larson's 40x5
AT ROCHESTER, N. Y., 15 h.p. in Mr. R. S. Beckwith's 24x4.6
AT PANAMA CITY, FLA., 65 h.p. in Mr. R. R. Powers' 36x5
AT EAU GALLIE, FLA., two NIAGARAS won firsts

PUT THE POWER OF NIAGARA IN YOUR BOAT

SEND FOR CATALOGS

NIAGARA GASOLINE MOTOR CO. 184-190 BRECKENRIDGE ST.
BUFFALO, N. Y.

"Honesty in Advertising"



PARAGON

The Paragon Gear
makes good in actual
service as well as
"on paper."

Find out who uses the
Paragon, and WHY?

*It's Designed Right
Built Right
Works Right*

Manufactured by

EVANS STAMPING & PLATING COMPANY
DRAWER 882, TAUNTON, MASS.

Branches

141 LIBERTY STREET, N. Y.
1205 MICHIGAN AVENUE, CHICAGO, ILL.
243 COLUMBUS AVENUE, BOSTON, MASS.
119 E. YORK STREET, BALTIMORE, MD.

Handled in Canada by the Canadian Fairbanks-Morse Co., Ltd.

SPEED BOATS

The Seaside Y. C. of Atlantic City, N. J., is preparing for the busiest season in its existence. The membership is composed of prominent business men who live at this famous resort the year round. At a recent meeting the following officers were elected for the ensuing year: Commodore, Allen K. White, owner of the world's champion, Sand Burr II; vice-commodore, Dr. J. B. Thompson; rear-commodore, Alfred E. Burk; secretary and treasurer, Dr. Talbot Reed. The regatta committee consists of Dr. J. W. Hughes, chairman, Chas. D. White, Walter T. Reed, Lewis Bowker and Stanley French; boat measurer, Frank Errica, Jr. Estimates are now being received by the club for a handsome new clubhouse to be erected upon an ideal location overlooking the Inlet.

Messrs. Allen K. & C. D. White are having a new and much speedier Sand Burr built and predict many broken records for 1912. Captain N. W. Young, an ardent speed enthusiast, owner of Dart II, has just completed a new triplane, equipped with a 6-cylinder, 90-h.p. Fox engine geared back to the propeller. Great things are expected of this new boat.

Vice-Commodore J. B. Thompson's new biplane, equipped with a 6-cylinder Watertown engine, has shown 33 miles and better on her maiden run and, it is hoped, will bring her owner's colors to the front during the series of races to be held by the South Jersey Racing Association. The new Appel monoplane, a later model than Sand Burr II, building for Mr. Louis Burk of the Seaside Y. C., is rapidly nearing completion and will be tried out shortly, as will also the new biplane being constructed for Mr. Walter T. Reed, owner of the fast displacement speed boat Vanish.

All of the above craft will do better than 33 miles per hour, and it is predicted that the Seaside Y. C. can select a team of 20-footers that will show a clean pair of heels to any equal number from any club in the country. The Seaside Y. C., besides belonging to the South Jersey Racing Association, is also a member of the American Power Boat Association, and its flag has been carried successfully all over the country.

NEW CATALOG

A new catalog of the Gas Engine & Power Co., and Charles L. Seabury & Co., Cons., of Morris Heights, N. Y., recently issued, contains illustrations of numerous yachts and working boats built by this firm, as well as a complete line of their 2-stroke and 4-stroke engines, water-tube boilers, steam engines and electric lighting plants.

They illustrate, with half-tone cuts, forty-five types of gasoline yachts, a power houseboat, shoal-draught river boats, as well as Government tenders and working boats.

The catalog gives a fair idea of the various types of craft the firm turns out, and they are today the foremost yacht and boat-building concern in the country.

REGAL FOR GOVERNMENT SERVICE

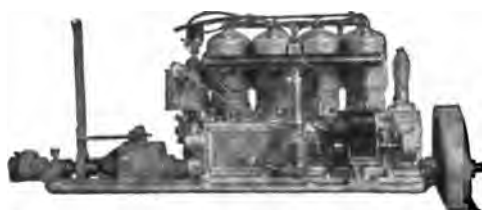
The United States Government has purchased from the Regal Gasoline Engine Company, of Coldwater, Mich., one of their 10-h.p. medium-duty engines for use in connection with the Fish Hatchery at Gloucester, Mass. This engine will be installed in a boat 25 ft. long with a 7 ft. breadth, the framing of which is of native New England white oak. The boat has been built to stand rough service and is of very substantial construction throughout. It will be in use the year round as a tender and work boat attached to the United States Fish Hatchery at Ten Pound Island, near Gloucester, Mass.

NEW VIM AGENCY AT PHILADELPHIA

The Vim Motor Company, of Sandusky, Ohio, manufacturers of the well-known Vim engine, have contracted for space in the Bourse Building, Philadelphia, and have placed their exhibit in the hands of the well-known firm of Olsen & Jarvis.

Mr. Olsen, at one time a well-known sea captain, is also recognized as an authority on marine engines, and if he recommends a Vim or any other engine it can be depended upon his selection will give satisfactory results.

The firm of Olsen & Jarvis has built up the largest business in Philadelphia because of their knowledge of boats and further, because they will not for the sake of making a sale induce a man to buy an engine which is not adapted for his particular requirements.



**Loew Victor
Model 13
4-Cylinder
Marine Motor—
The Engine to which
is due the splendid**

The LOEW VICTOR is the Motor You Will Find in the MOST SUCCESSFUL Boats

ARE you guided in the selection of a marine engine merely by generalities or do you give careful thought and consideration to the actual vantage points that you desire embodied in the motor?

Mr. R. H. Stackhouse of Riverton, N. J., has been rewarded with the notable success of his 38-foot cruiser, "Wanda," for the care that he took in selecting its motor. He equipped the "Wanda" with a 4-cylinder, Model 13 Loew Victor after a close comparative study of all the motors well enough known to have a claim upon his attention.

We invite your critical study of Loew Victor Marine Engines—built in 6 sizes, 1 to 6 cylinders, 6 to 60 h.p., and in medium and high-speed types.

Success of THE WANDA—38-Foot Cruiser Owned by Mr. R. H. STACKHOUSE of Riverton, New Jersey

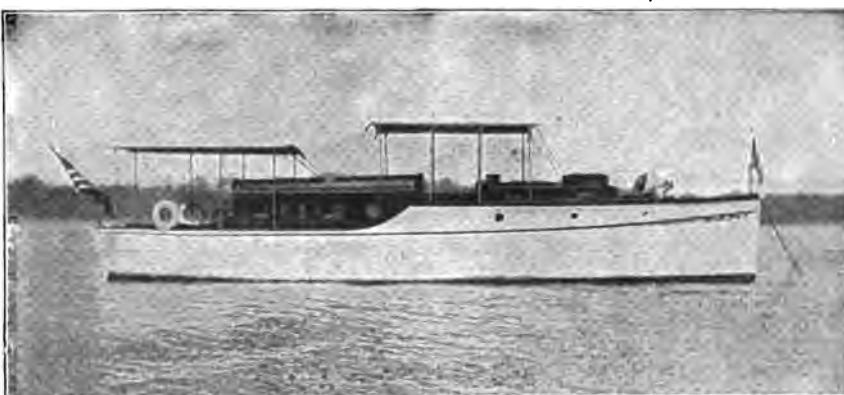
The Best Stock Motor on the American Market

All Sizes of Motors in Stock for Immediate Shipment

COMPLETE CATALOG ON REQUEST

New York Office, Room 311-E, 30 Church St.
C. W. Estabrook, 33 Broad St., Boston, Mass.
Carman & Bowes, Bourse Bldg., Phila., Pa.
The Wallace Bros., Norfolk, Va.
P. F. L'Eagle, West Bldg., Jacksonville, Fla.
James W. Wait & Co., 1205 Michigan Ave., Chicago
Horton Boat, Engine and Supply Co., Rochester, N. Y.
J. O. Johnson, Bemus Point, N. Y.
H. L'Hommedieu, 182 Franklin St., Buffalo, N. Y.
Joe Fellows Yachting and Launch Co., Wilmington, Cal.
Columbia Boat & Engine Co., Marshfield, Ore.
The A. R. Williams Machinery Co., Toronto, Ont.

The Loew Manufacturing Co.
1908 Madison Avenue, Cleveland, Ohio



The ROPER WHEEL

MAKES MANEUVERING A PLEASURE

Prevents the Two Most Common and Worst Two-Cycle Engine Troubles

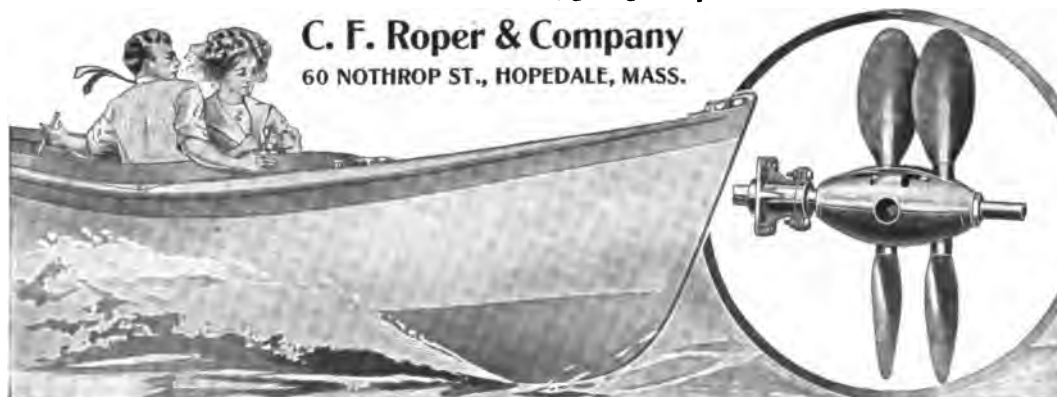
Either flooding or backfiring is almost sure to cause the engine to stop. This is impossible when your two-cycle engine is equipped with the Roper Wheel, provided the engine is once properly adjusted, because the Roper gives you any speed in either direction on the instant, without changing the speed of the engine—by the operation of one controlling lever. *Makes your two-cycle engine behave at all times.*

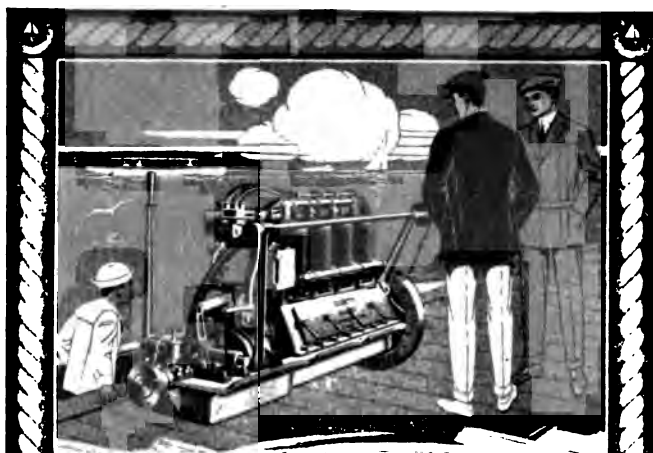
Absolute speed control in a two-cycle engine is possible only with the Roper Wheel.

Prices of Roper Wheel reduced 25% from last year's owing to increased demand and larger producing facilities.

Write for illustrated booklet, giving full particulars.

C. F. Roper & Company
60 NOTHROP ST., HOPEDALE, MASS.





YES sir! That motor will do the business.

The Scripps has the best stuff in it that can be bought.

It will make you a compact, strong power plant—one upon which you can always rely.

It's a *complete, unit marine engine and gear*—well designed, accurately constructed and thoroughly accessible.

I know several men who are *changing to Scripps equipment* this year. They are wise."

THE SCRIPPS COMPLETE MARINE POWER PLANT

"The motor that really did master Niagara"

Scripps Motors have made wonderful records in all parts of the world. They have won medals and diplomas at all the principal European expositions.

Perfect record in the recent Scripps Reliability Cruise.

The Scripps was the motor used by Capt. Klaus Larsen in his 15-foot power boat with which he successfully navigated the Niagara Whirlpool and Rapids.

Write for catalog describing our entire line of complete Power Plants from one to six cylinders, 4 to 100 h.p.

SCRIPPS MOTOR COMPANY

612 Lincoln Avenue Detroit, Mich.

Scripps Motors are Carried in Stock in New York by
BOWLER, HOLMES & HECKER CO
143 Liberty St., New York City

A NEW FACTORY

The accompanying illustration shows the new factory recently erected by the Columbian Brass Foundry, of Freeport, L. I., which they have occupied since March. The building is 220 ft. long by 64 ft. wide and contains every modern device for the manufacture of bronze propellers and other marine accessories. It is located on the main street of Freeport and a roadway on the North furnishes a means of access to the shipping room and to the foundry in the rear. The building is of modern, brick factory construction, one story, with an imposing front of buff brick.

In the rear of the building is the foundry, 50 ft. by 64 ft., with a monitor roof for light and ventilation. In the foundry is a modern coke tilting furnace with a capacity for melting 2,700 lb per day. A battery of pit furnaces brings the total daily melting capacity up to 6,000 lb. Every facility is employed here for manufacturing the best manganese bronze castings. Bertha spelter, the best grade obtainable, is used, together with the best ingot copper. No scrap metal whatever is used in the mixture.

The factory further comprises a cleaning and chipping room where the gates are sawed off by automatic sawing machines and the castings ground off ready for polishing; a large polishing room where the propellers are accurately polished and buffed by experts; a machine shop where the boring of the wheels and all other machine operations are performed; a stock room where the large stock of finished propellers, universal struts, rudders, outboard rudders, Tobin



bronze shafting, stuffing-boxes, etc., are kept; and the packing and shipping room.

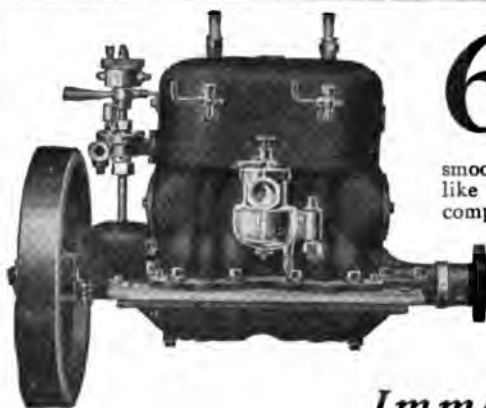
In the machine department all propellers are faced off on the hubs and a small centering hole drilled. This is a great advantage to those who order their propellers not bored.

Adjoining the foundry is a large pattern storage room and pattern shop which contains probably the largest assortment of propeller patterns in any one room in the country. This company claims to be the only one having a large number of different styles of propellers and a large number of patterns for different pitches of each different diameter of each different style. This enables them to supply any type or size of propeller that may be required for any particular boat. Each pattern is very accurately designed, and the extreme care used in this department is proven by the excellent reputation enjoyed by Columbian speed propellers and accessories.

The front of the building is devoted to the office, where every modern office convenience is afforded, including a large fireproof book vault for the storage of records; dictaphones for dictating correspondence, with a special sound-proof room for this purpose; addressing machines, etc. The building, on the whole, shows careful study to obtain the most convenient arrangement and every modern facility and with this greatly increased capacity the Columbian Brass Foundry are now in a position to handle their business with the utmost dispatch and to provide the best of material and workmanship.



**14 ft. Hydroplane. Equipped with
6 H.P. 2 cylinder Gray Motor Speed
16 to 17 Miles per Hour**



6 H. P. Model "U". Same engine as installed in above boat. The *only* strictly high class, 2 cylinder motor ever offered at this price. Correct design—finest material and same high grade workmanship as the highest priced motors built. Use it in a 12 or 14 ft. canoe or dinghy—14 or 16 ft. hydroplane or any open launch up to 25 ft. Runs smooth and quiet and furnishes big power—handles like a high priced automobile engine. Price with complete fittings ready to install in your boat - - - **\$114.00**

Complete Stock of Motors in all sizes from 3 to 36 H. P.—1, 2, and 3 cylinder models for canoes - row boats - speed, pleasure and work boats - yachts and cruisers \$55 to \$454

Immediate Delivery

The man who is about to order an engine at this time wants it in a hurry—he can't afford to take any chances on annoying delays and late deliveries.

That's why we urge upon you the absolute necessity of placing your order with a big responsible concern.

A concern that is large enough and has the facilities—equipment and organization to take care of *all orders immediately* even at this time—*the rush season*.

We have *the largest and best equipped plant in the world devoted exclusively to the manufacture of 2 cycle motors*.

We have the organization—the facilities—the room and the capital to build up Gray Motors in immense quantities during the dull season.

We started machining—inspecting—finishing and crating 1912 models early last fall—*We are ready for the rush*.

You won't be put off with any feeble excuses or unsatisfactory answer as to why we cannot ship your engine immediately—we have the stock—we can and will make immediate shipments—*we guarantee it*—you get what you want when you want it.

But that is the least of our argument.

Immediate delivery means nothing unless the motor is going to give absolute satisfaction in your boat.

In nearly every spot on the map, where motor boating is prevalent for either pleasure or profit, can be found all the way from half dozen to 50 or 100 satisfied Gray owners.

Ask some friend who owns a Gray what he thinks of it—if you do not happen to know a Gray owner find some one who does know a Gray owner and get *all the information possible*.

We want you to find out all you can about the Gray in actual service—that's what counts—and it's the easiest way we know of to convince you that the Gray is the engine you want.

Get This Big 48 Page Engine Book.

Everyone interested in Motor Boating in any way should have a copy of this book—it is brim full of valuable information—contains real facts about marine motors—their construction—care and operation—facts it will pay you to know.

Send For Your Copy Today—in the meantime get all the facts possible about Gray Motors—find out what other people think about them—find out what kind of care we take of our engines after they are sold—then study the catalog carefully—you'll find it more than a mere list of details and specifications. The information it contains will help you in many ways in making the right selection—it will show you plainly and honestly just how to get the most power and best satisfaction for the least expenditure.

Book of Boats—Just off the press—the latest and most complete edition of a valuable book showing boats of kinds and sizes. Just what you need. Ask about it.



GRAY MOTOR CO.

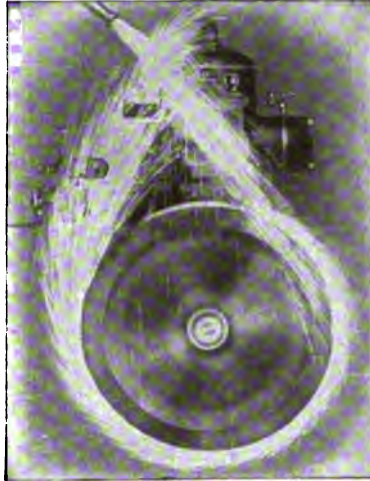
636 U. S. MOTORS BLDG., — Detroit, Michigan.

YOU CAN'T SHORT-CIRCUIT THIS CAILLE PERFECTION

My new Igniter with the *Helmet* and *"Raincoat"* insulator make the ignition system of this Caille Perfection invulnerable to dampness, beating rain, flying spray or a heavy sea. I have thoroughly tested this marine wonder for four hours submerged in water—short-circuiting is impossible.

NO BATTERIES MAGNETO TIMER COILS

The Caille Perfection Igniter obviates the use of batteries, magneto, timer and coils. The thin-ble-shaped *Helmet* protects the spark-plug, and the *"Raincoat"* perfectly insulates the one single wire I use on the entire ignition system. There is no auxiliary apparatus, no variation in current, no adjusting and no cranking—this, Caille Perfection starts as easily as the new self-starter on my 1912 car.



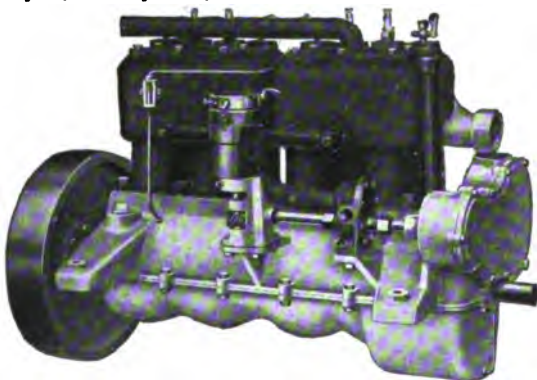
INSURE A SEASON OF MOTOR-BOAT PLEASURE

My waterproof ignition system insures every Caille Perfection engine buyer the real pleasure of motor boating without short-circuiting trouble, interruption or delay. My engines range from 2 to 30 h.p. With my personal guarantee of full rating, they are the best buy on the market, as my free Catalog amply proves—write for it today, A. ARTHUR CAILLE, President.

CAILLE PERFECTION MOTOR CO. 1204 Caille St., Detroit, Mich.

\$150 Kermath \$150

Made by KERMATH MFG. CO., Detroit, Mich.
4 Cyl., 4 Cycle, 3½x4 in. 10-12 H.P.



"The engine you have hoped for"

TERMS: Deposit price of motor with your own bank, and have your banker write us. We will immediately ship the motor direct to you. Use it for thirty days. If dissatisfied, ship it back to us, take the bill of lading, with this advertisement, to your bank, and they will refund your money.

SOLE DISTRIBUTORS:

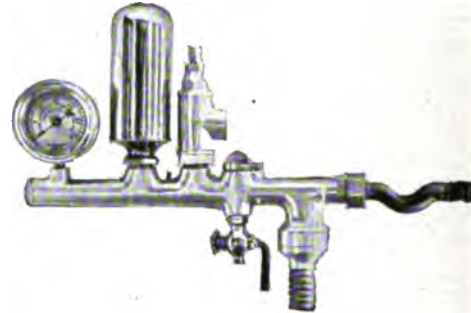
MORTON MOTOR CO.

47 East Fort St., Detroit, Michigan, U. S. A.

THE AUTOMATIC BILGE PUMP

The Aaron automatic bilge pump, built by the Aaron Automatic Bilge Pump Company, of 171 Westminster St., Providence, R. I., is unique among bilge pumping devices in that it takes no power from the engine—cannot run hot when dry—and is always on the job, requiring no split pulleys, lever throws, or other bringing-into-action attachments, which rely upon the eternal vigilance of some one who may be too busy at the time to throw the ordinary pump in or out of connection.

One of the great advantages of the Aaron automatic bilge pump lies in the fact that the pump is drawing just as long as the engine runs, that when it ceases to pump bilge it commences to pump air, and consequently, any free gasoline



vapor that may be aboard the boat, and which always sinks to the lowest portion of the bilge.

With this pumping device, the entire work is done by the circulating water of the engine after it has cooled the cylinder, thus obviating all belt or gear drives, shaft attachments, and other bulky devices used in the ordinary pump.

An exceptional feature of the Aaron bilge pump lies in the fact that it is most admirably adapted for keeping clean and dry the hold in fishing and oyster boats and ice barges, as it will first dispose of the water in the bilge and then suck out all the foul air.

The Aaron pump is built in a variety of sizes, so that whether one's engine be of 2½ or 500-h.p. there is an Aaron automatic bilge pump perfectly adapted to it.

When ordering a pump give length of hull of boat, also the make and horsepower of engine, the style of circulating pump and size of outlet pipe on the circulating system.

* * *

SHEPPARD'S SHIPYARD, ESSINGTON, PA.

The schooner yacht Savarona is at Sheppard's Shipyard, Essington, Pa., installing a 130-h.p. Standard engine and fitting out for the season.

At the same yard, the 71-ft. power yacht Arawan II, belonging to Mr. Chas. Longstreth, Philadelphia, Pa., was launched on May 8th. This yacht, while not of high power, is a very comfortable and roomy boat, with a breadth of 16 ft. and a draught of 3 ft. 6 in. It is equipped with Murray & Tregurtha engines, a Commercial Acetylene lighting plant, and is heated throughout with hot water for winter cruises.

* * *

ATLANTIC'S NEW SALESROOM

Announcement is made by the Atlantic Company that they have opened at Westport, Conn., salesrooms, supply station and showrooms in charge of Mr. Thornton Smith, who will devote his time and attention to the interest of the Atlantic Company's customers on Long Island Sound in this vicinity.

Standard boats will be carried in stock for quick delivery, and supplies of gasoline, oil and other accessories such as are required may be obtained.

Prospective purchasers are invited to inspect the station and get acquainted with Mr. Smith, who is a thorough yachtsman and competent to assist them in selecting power boats suitable for their requirements.

Elbridge Engines

Maximum power for weight, combined with absolute reliability, place Elbridge engines in a class by themselves. If you are interested in canoes, dinghies, fast runabouts or high-speed launches, it will pay you to investigate the Elbridge.

ELBRIDGE ENGINE CO. 27 Culver Road, Rochester, N. Y.

A Perfect Motor^{\$}39

2 H.P. Complete

There is nothing so perfect on the market at the price as Northwestern Motors.

With all fittings, including Propeller, Shafting, Stuffing Box, Wiring System, Ignition System, Battery, Switch, Spark Coil, Spark Plug, Controlling Lever, Under Water Exhaust; etc., etc.

A real Marine Engine sensation. For value there is nothing like it or can begin to compare with it. Perfect construction; semi-steel cylinders, piston and piston rings; drop-forged crankshaft; highest grade friction metal bearings—is highly finished, smooth running, easy starting, silent, compact, economical, reliable—a perfect two-cycle reversing motor—five years' guarantee, and so simple a woman or child can run it.

3,4,6,10,20 H.P.
Proportionately low priced

**Northwestern
Marine Motors**

Northwestern Motors are mechanically perfect in every detail—cylinders, pistons and crankshafts are so accurately worked to a thousandth part of an inch that the engines run perfectly and smoothly every time. Every part is given a high polished finish, and every piece of material that enters into their making is highest grade throughout. Save on your marine motor this year. Get free catalog, that describes Northwestern Motors fully.

STATIONARY ENGINES

WE ALSO MAKE A COMPLETE LINE OF STATIONARY ENGINES IN ALL SIZES. CATALOG FREE.

Attractive Offer to
Boat Builders and Agents

Northwestern Steel & Iron Works, 304 Spring Street, Eau Claire, Wis.



MICHIGAN

THIS year you must have one of the famous Michigan racing propellers, the Royal, Dixie or Hydroplane, for your new racing boat. Or, if you have a cruiser, launch or runabout, our Standard, 20th Century or Perkins. They will increase your speed over the present wheel you are now using, and you can win the races you lost last year.

If you have any trouble with your Reverse Gears, then use the old reliable Michigan. You will soon forget your troubles from the pleasure derived from the Michigan Gears, which are designed and built for hard continuous service. They are not only used on towboats, but on racers and all kinds of motor-boat crafts.

Specify the Michigan for your new outfit. Every dealer, boat and engine builder will be more than pleased to furnish you the Michigan, as they all know the good results and satisfaction they will give their customers.

Send for free catalog today; full of valuable information. A postal or letter brings it to you free.

Eastern Branch
89 Cortlandt St., New York City

MICHIGAN WHEEL CO. 889 CANAL STREET
GRAND RAPIDS, MICH., U. S. A.

BRUSHMARINE 3-5 H.P.
OAKLAND 20-32 H.P.

The Wilpen Co.
Bates & Congress Streets
DETROIT, MICHIGAN

Fulton Self-Sparking Engines

No Coil No Battery Mechanical Oiling System



The Ideal Engine for your small cabin cruiser, yacht tender, launch or work boat. Our Self-Sparking Ignition System does away with all coils, batteries, timers, etc.

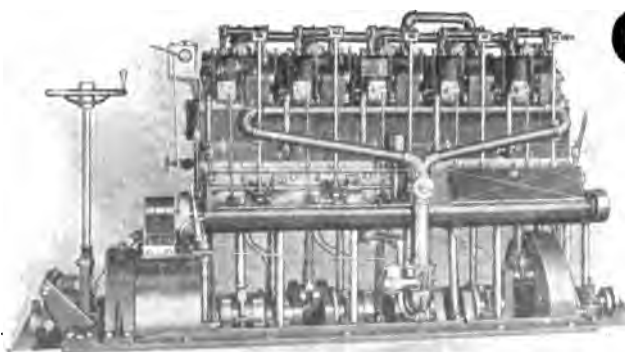
It is entirely waterproof and guaranteed for three years. Die cast bearings, water-jacketed muffler on engine.

The best engine built and backed by a Company that makes every customer a satisfied one.

FULTON MFG. CO., Erie, Pa.

A full line of engines and extra parts carried in all the principal cities along the Atlantic Coast.

3 1/2 to 15 H.P.



GASOLENE YACHTS AND ENGINES

Noted for Reliability

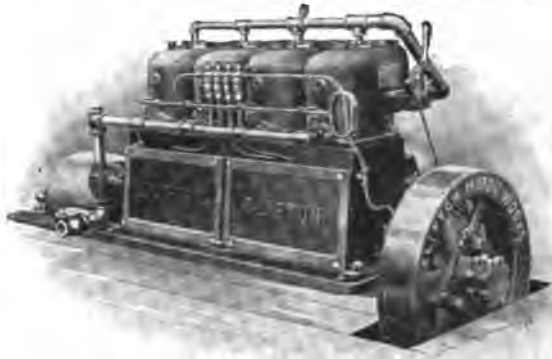
Tregurtha Water-Tube Boilers Steam Engines
Electric Light Outfits

MURRAY & TREGURTHA CO.

340 West First Street

South Boston, Mass.

Clifton Marine Engines



10 H.P. to 80 H.P.

Both open and closed crank-case types for all classes of service.

The Clifton Motor Works
230 East Clifton Ave., Cincinnati, Ohio

W. K. Thomas, Motor Mart Building, 1876 Broadway, N. Y. City
Loane-Hiltz Engineering Co., 306 South Hanover St., Baltimore, Md.
Albert M. Darling, Northwestern Representative, Olympia, Wash.
C. T. Patterson Co., New Orleans, La.
Hayward & Garrett, Exclusive Agents, Dunedin, New Zealand.
National Engineering Co., 419 Cordova St., Vancouver, B. C., Canada.
W. L. A. Strawbridge, 30 N. Fifth St., Philadelphia, Pa.

EDISON BSCCO PRIMARY BATTERY

Exhaustive articles have been written, explaining the principles of mechanical devices for generating current for ignition, their troubles and how to eliminate them. The common sense method is to avoid the trouble by installing a source of current containing no moving parts, requiring no adjustment and capable of maintaining uniform voltage under varying conditions and speeds, or in other words a high grade battery.

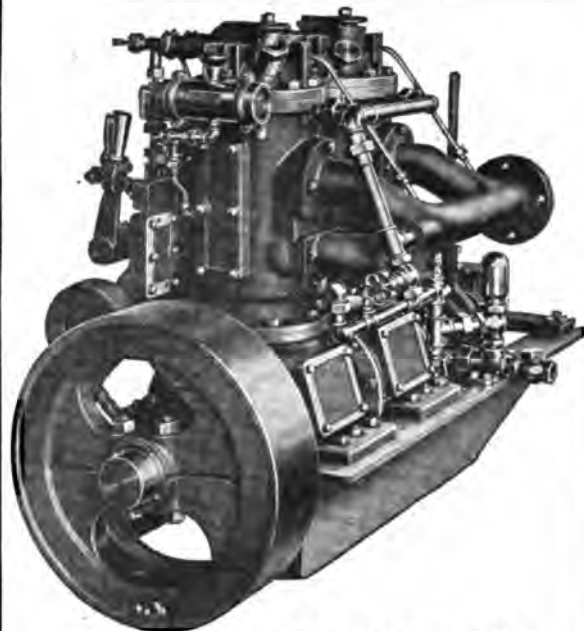
Batteries of the open circuit type are not suitable for ignition, for the reason that the voltage drops rapidly, due to polarization, when the cells are discharged continuously, and after a short period of service their weakened condition causes the engine to miss fire, thereby wasting fuel.

The Edison BSCCO Cell, on the contrary, is designed for just such service and maintains a constant voltage until its rated capacity (which ordinarily is sufficient for an entire season) is consumed.

To obtain best results the Edison Spark Coil should be used in connection with it, and you have the simplest, most reliable, and economical sparking outfit possible to obtain.

Write us regarding your requirements.

Thomas A. Edison, Inc., 252 Lakeside Ave., Orange, N. J.



17-H.P. BLANCHARD MARINE OIL ENGINE

**The Modern Marine Engine
For the Modern Fuel**

BLANCHARD MARINE OIL ENGINE

Oil is recognized as the best fuel for marine work. It is absolutely safe and costs generally only one-half as much as gasoline. The Blanchard Marine Oil Engine runs on kerosene and fuel oils, producing power for less than one-quarter the fuel cost of the gasoline engine. The very best of materials and workmanship are behind the Blanchard Marine Oil Engine. It is built for industrial and pleasure boats. You cannot afford to overlook this epoch-marking marine engine.

Send for catalog—just off the press

The Blanchard Machine Co.
65 State Street
Cambridge, Mass.

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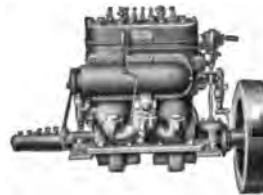
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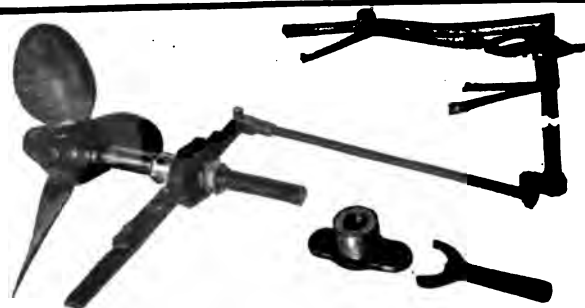
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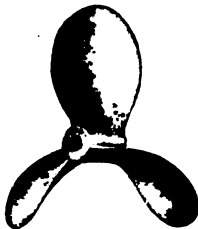
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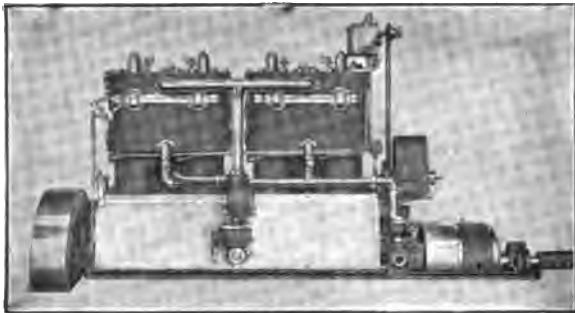
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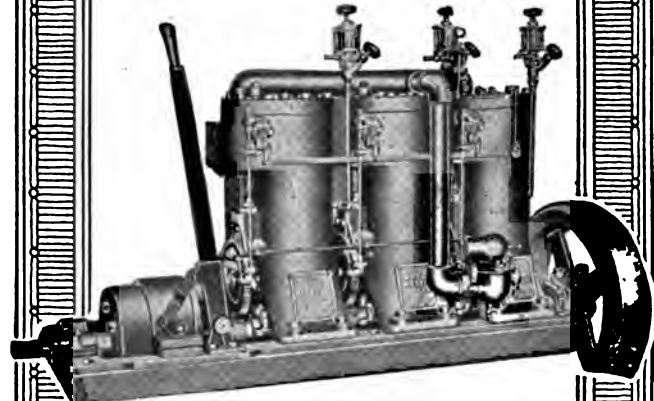
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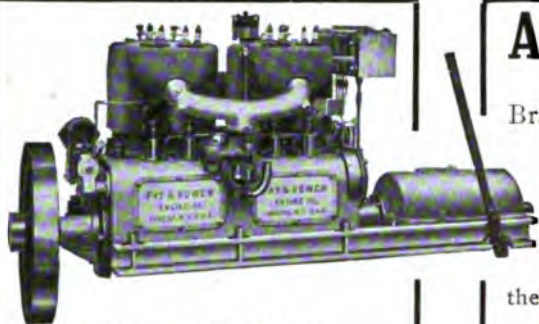
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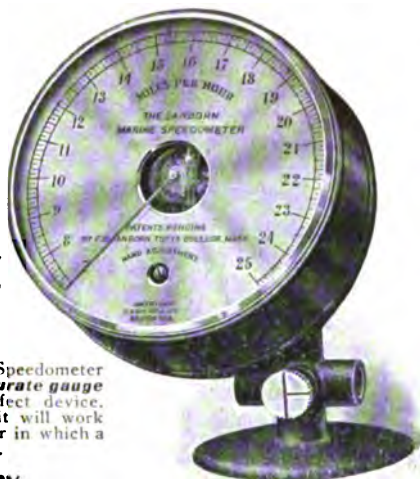
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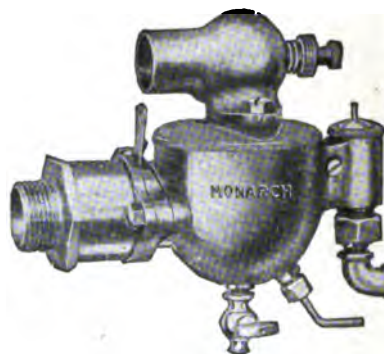
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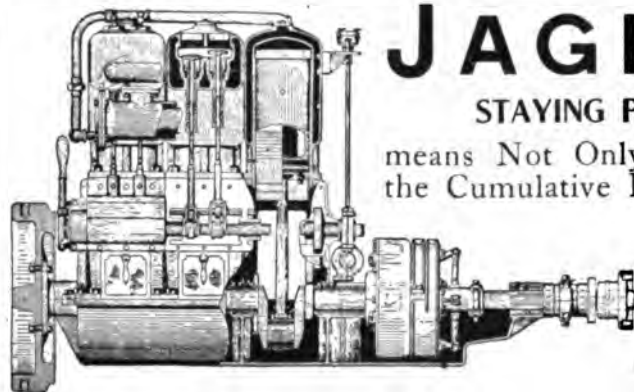
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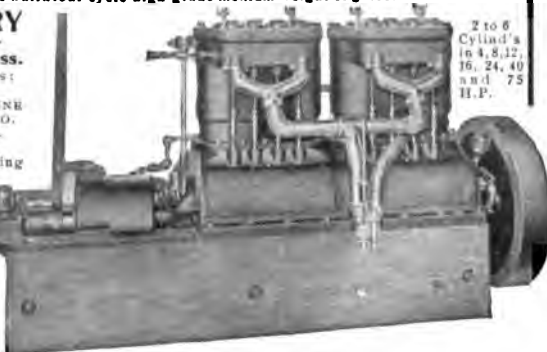
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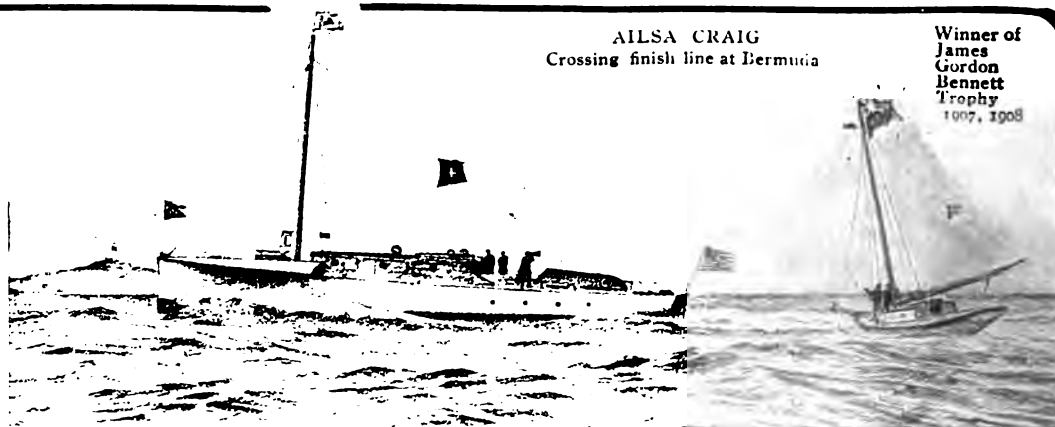
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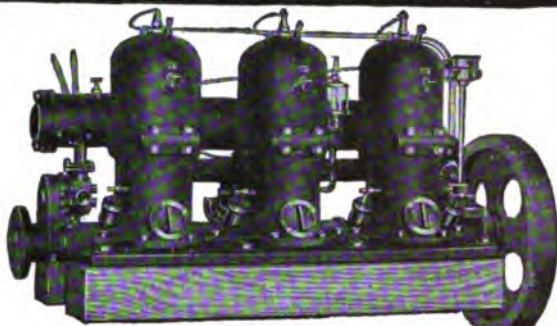
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Standard Type 3 to 36 H.P. **Extreme High Speed Type** 13 to 55 H.P. **Heavy Duty Type** 3½ to 18 H.P.

If you are looking for the most economical and most efficient engine for your boat you will do well to investigate the Vim. Doubtless you can make the investigation in your home waters, for the Vim is in service in all parts of the world. The Vim is the result of many years' experience and improvement. Through its sturdiness, simplicity and reliability, the Vim has won a high position in the opinion of motor boat owners. The new and improved 1912 Vim embodies many new features and advanced ideas that place it in a class by itself. We urge you to make your investigation as early as possible as we feel sure of the results and know that the demand for Vim engines will be greater than ever.

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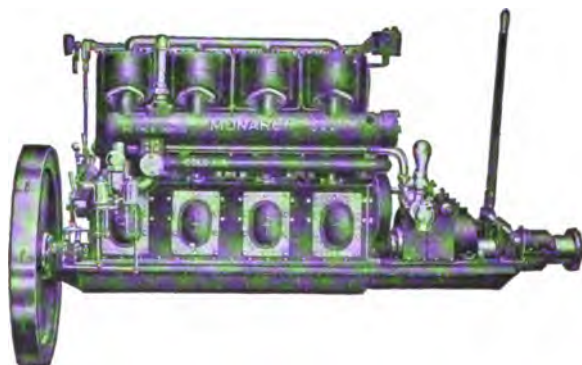
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Reliability and durability secured by slow speed, perfect lubrication, large bearing surfaces, and ample strain-resisting material.

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100 FRONT STREET GRAND RAPIDS, MICH.

RACING EVENTS, 1912

In order that this list may be complete we would be pleased to receive from club secretaries and chairmen of race committees any correction or additions to the following schedule:

Saturday, June 1

Knickerbocker Y. C.—Annual regatta.

Friday and Saturday, June 7 and 8

Camden M. B. C. (N. J.)—Power cruiser races.

Saturday, June 8

Manhasset Bay Y. C.—Annual regatta.
Mosquito Fleet Y. C.—M. Y. R. A. and Interclub open races.
San Francisco Y. C.—Power-boat race.

Saturday and Sunday, June 8 and 9

Hydroaeroplanes and Hydroplanes.—Hudson River, New York.

Saturday, June 15

Bridgesburg M. B. C. (Pa.)—Power-boat races.
Crescent A. C.—Power-boat races.
Larchmont Y. C.—Spring regatta.
Trenton Y. C. (N. J.)—Power-boat races.

Monday, June 17

Boston Y. C.—M. Y. R. A. at Hull.

Wednesday, June 19

Indian Harbor Y. C.—Race to New London.

Friday, June 21

Keystone Y. C.—Long-distance power-boat race.
Seawanhaka-Corinthian Y. C.—Special race.

Friday and Saturday, June 21 and 22

Delaware River Y. R. A.—Association cruise.

Saturday, June 22

Chicago Y. C.—Power-boat races.
Colonial Y. C.—Cornfield Light race. Power boats.
Corinthian Y. C. (Marblehead)—Ocean race.
Crescent A. C.—Gravesend Bay championship race.
New York A. C.—Block Island race.
Savin Hill Y. C.—M. Y. R. A. and Interclub open races.
Seawanhaka-Corinthian Y. C.—Annual regatta.

Saturday and Sunday, June 22 and 23

Tappan Zee Y. C.—Power cruiser race.

Sunday, June 23

Lakewood Y. C. (Ohio)—Power-boat races.

Thursday, June 27

Cambridge Y. C. (Md.)—Baltimore to Cambridge.

Friday, June 28

Seawanhaka-Corinthian Y. C.—Race to New London.

Friday and Saturday, June 28 and 29

Cambridge Y. C. (Md.)—Power-boat race.

Saturday, June 29

Eastern Y. C.—Special open races.
Maryland M. B. C.—200-mile power-boat race.
New Rochelle Y. C.—Annual regatta.
N. Y. M. B. C.—Albany race.
Ocean City M. B. C.—Power-boat regatta.
South Jersey Racing Association.—Power-boat races.

Monday, July 1

Riverton Y. C. (N. J.)—Power-boat races.
Vancouver, B. C., to Tacoma, Wash.

Wednesday, July 3

American Y. C.—Annual regatta.

Thursday, July 4

Boston Y. C.—M. Y. R. A. at Marblehead, a. m.
City of Boston races at City Point.
Corinthian Y. C.—Open races at Marblehead, p. m.
Hartford Y. C.—Annual regatta.
Larchmont Y. C.—Annual regatta.
Ogdensburg M. B. C. (N. Y.)—Power-boat races.
Wilmington Y. C. (Del.)—Power-boat races.

(Continued on page 36)

Fox Motors

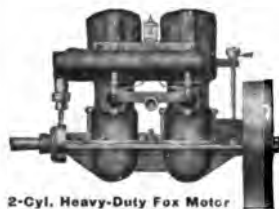
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We Pay the Express east of the Mississippi River, or to the Mississippi on
points beyond, when cash accompanies the order.



Ferro simplicity is such that a woman or
boy can operate a launch powered with a
Ferro Engine with perfect ease and safety.

Simplicity is of the utmost importance when
considering an engine from a mechanical
standpoint, because—

First.—Simplicity assures reliability.

Second.—A simple engine is the easiest to under-
stand, and can be operated by your wife or sweetheart.

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tain, is the easiest to keep in repair, and is the most
economical "in the long run."

Simplicity is only one of the many strong
points in which Ferro Engines excel. Our
1912 Treatise Catalog—the most compre-
hensive book on marine gasoline engines ever
published—will give you full details as to why
it will pay you to buy a Ferro. Send for it
today, or, better still, let our local agent
demonstrate the engine to you.



In addition to building "The World's Standard 2-Cycle Marine
Motor," we have developed a large and efficient line of Stationary and
Portable engines suitable for various power requirements.
They can be used to advantage wherever small power is necessary,
and full descriptive literature concerning them will be sent you without cost.

The Ferro Machine & Foundry Co.
53 Hubbard Ave. and East 66th St., Cleveland, Ohio

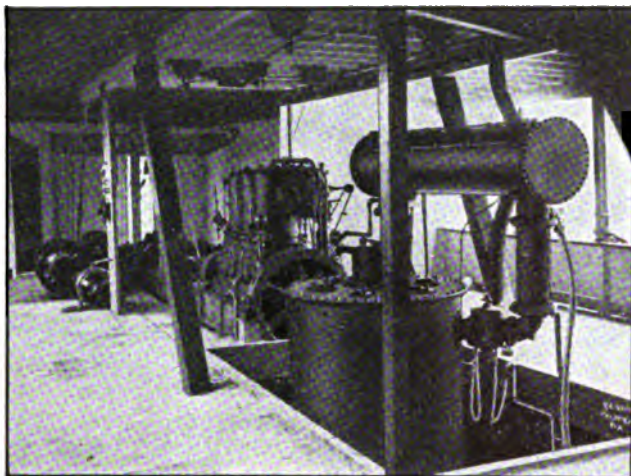
Distributors

New York: Gasolene Engine Equipment Co., 133 Liberty St.

Boston: The Pratt Engine & Boat Co., 38 Atlantic Ave.

Chicago: Chicago Boat & Engine Co., 1508 Michigan Boulevard

"WOLVERINE" THE MOTOR WITH THE BORE AND STROKE



Report from Engineer on "ST. LUCIE", which is equipped with a 75-H.P. "WOLVERINE" Engine and Gas Producer.

Gentlemen:— Jacksonville, Fla., 2, 25, 1912.
Made the run from Palatka in 7¼ hours (62 miles—statute miles). Burned 630 lbs. coal. Averaged 30 turns whole distance. Not wide open, only for 200 yards coming into Jacksonville when we were turning wheel 40 turns. Operation perfect, never pulled clutch out or slowed down till we docked. Cleared with 75 tons of lumber.

There is a great deal of rivalry here among stern wheelers regarding their speed, but I can say with authority that the "ST. LUCIE" is the fastest stern wheeler on the "ST. JOHN'S". Am so proud of it that I feel like getting full to celebrate our victories. Just think, first stern wheeler in the world fitted with producer gas, and Queen of the St. Johns River.

Victory No. 1.

Yesterday afternoon coming down we caught up to the "MacNeil", a most dilapidated-looking freight boat. Well, it was nip and tuck for about one hour, when we gradually pulled away from her and arrived in Jacksonville three hours before her. After she arrived we found out that they had tied the safety valve down and even the Captain went down to help put the wood to her. It was a slow race but very exciting while it lasted, as we could see the sparks flying out of her stack as she strained every seam in her with the vibration by the tremendous burst of speed. Mind you, we never even had to open the throttle.

They admit that we won but said that it was due to a dirty or foul bottom or something like that.

Victory No. 2.

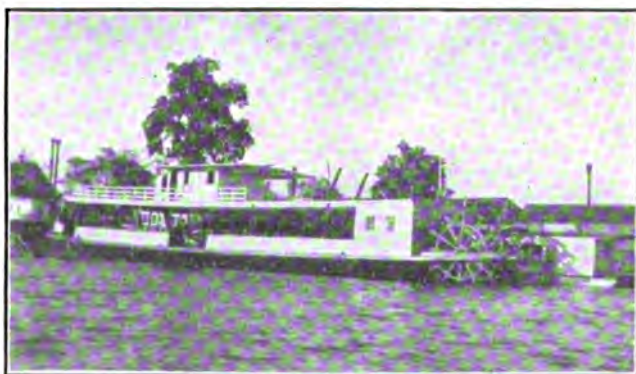
The Florida Coastal's boat, the "SWAN", the ex-Queen of the River, went up the river today, with an excursion, twelve miles, and Captain Howard, General Manager of the Company, felt so elated over our successful brush with the "MacNeil", which was Queen before the "SWAN" arrived, that he suggested a race with the "SWAN". They were easily a mile ahead when we got underway and after a most pretty race of eleven miles we passed her bow.

The "SWAN" can hardly bring in any technicalities, as they were forewarned of our intentions, and besides she was light and we still had the load of lumber aboard.

You can hardly appreciate this, living in such a swift town, but believe nothing could have happened to better our chances and draw attention to our plant than this, as every steamboat man here has the "ST. LUCIE" on his tongue.

Very truly yours,

(Sd) Herbert E. Kempton, Engineer.



Write for Catalog No. 43

WOLVERINE MOTOR WORKS Bridgeport, Conn., U. S. A.
Formerly at Grand Rapids, Mich.

RACING EVENTS, 1912—(Continued from page 34)

Thursday, Friday and Saturday, July 4, 5 and 6

Miss. V. P. B. Assn.—Power-boat regatta.

Friday, July 5

Hingham Y. C.—M. Y. R. A. open races.

Saturday, July 6

Riverside Y. C.—Annual regatta.

Squantum Y. C.—M. Y. R. A. and Interclub open races.
Yachtsmen's Club of Philadelphia.—Long-distance race.

Saturday, July 13

Columbia Y. C.—M. Y. R. A. and Interclub open races.
Indian Harbor Y. C.—Annual regatta.

Sunday to Sunday, July 14 to 21

Inter-Lake Y. A.—Regatta at Put-in-Bay, Ohio.

Tuesday, Wednesday and Thursday, July 16, 17 and 18
Great Lakes Regatta at Put-in-Bay, Ohio.

Friday, July 19

Atlantic City M. B. C.—Power-boat races.

Saturday, July 20

Winthrop Y. C.—M. Y. R. A. and Interclub open races.

Saturday and Sunday, July 20 and 21

N. Y. M. B. C.—Annual cruise.

Saturday to Saturday, July 20 to 27

Larchmont Y. C.—Race week.

Saturday, July 27

Keystone Y. C.—Power-boat races.

Yachtsmen's Club of Philadelphia.—Bermuda race.

Monday, July 29 to Saturday, August 3

Petoskey M. B. C. (Mich.)—Power-boat races.

Tuesday, July 30 to Wednesday, August 7

Scripps Reliability cruise.

Wednesday, July 31

Hudson River Y. A.—Annual regatta at New York.
Quincy Y. C.—M. Y. R. A. open races.

Thursday, Friday and Saturday, August 1, 2 and 3

A. P. B. A.—Gold Cup races at Frontenac.
Boston Y. C.—Midsummer series at Hull.

Saturday, August 3

Horseshoe Harbor Y. C.—Annual regatta.
Riverton Y. C. (N. J.)—Power-boat races.
Wollaston Y. C.—Interclub open.

Sunday, August 4

Lakewood Y. C. (Ohio)—Power-boat races.
Lynn Y. C.—Squadron run to Marblehead.

Monday, August 5

Eastern Y. C.—Special open race to Marblehead.

Tuesday, August 6

Boston Y. C.—M. Y. R. A. open race at Marblehead.

Wednesday, Thursday and Friday, August 7, 8 and 9
Corinthian Y. C.—Midsummer series at Marblehead.

Thursday, Friday and Saturday, August 8, 9 and 10
Great Lakes P. B. League.—Regatta at Hamilton, Can.

Saturday, August 10

Bridgeport Y. C.—Annual regatta.
Corinthian Y. C.—Annual open races at Marblehead.
Delaware River Assn.—Power-boat races.
Huguenot Y. C.—Annual regatta.

Saturday to Saturday, August 10 to 17

Western P. B. Assn.—Power-boat regatta, Chicago.

Sunday, August 11

Lakewood Y. C. (Ohio)—Power-boat races.
San Francisco Y. C.—Power-boat races.

(Continued on page 38)

CRAGG High-Speed Motors

Simple, Handsome, Powerful, Durable, Reliable



Fully Equipped. \$37.00

The above motor reverses, runs on high, low or medium speed, stop and start, all by means of only one control lever. This makes it so simple any one can handle it. This motor has only three moving parts, and is the most simple of any motor on the market.

- ¶ When you buy a Cragg motor you don't buy an experiment.
- ¶ You buy a motor that has not only been tested by the manufacturer, but has been proven the height of motor perfection in the real test of everyday service.
- ¶ Cragg motors are built primarily for service and satisfaction, and that is what they give.
- ¶ Good service means satisfaction for the user, profit for the dealer and success for the manufacturer.
- ¶ There is a selfish purpose back of the quality we put into Cragg motors, the high-grade design, workmanship, finish and equipment. We know that our success as manufacturers depends upon the success of our motors.

¶ That's why we offer the perfection of motor production in Cragg motors, and would build them even better if it were possible to do so.

¶ We also are building motors of the larger and heavier type, viz.: single cylinder 4½ h.p. and also 6 h.p. Two-cylinder 3½, 8 to 10 h.p. and 12 to 14 h.p. Three-cylinder 18 to 20 h.p. and 30 to 36 h.p.

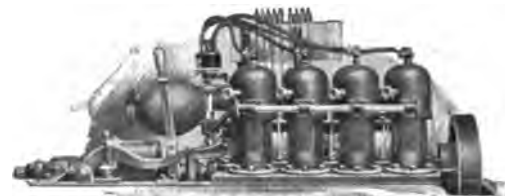
¶ If you are an owner looking for the best motor for your boat, or a dealer looking for a high-grade profitable line of motors, don't take action until you have secured full information about Cragg Motors.

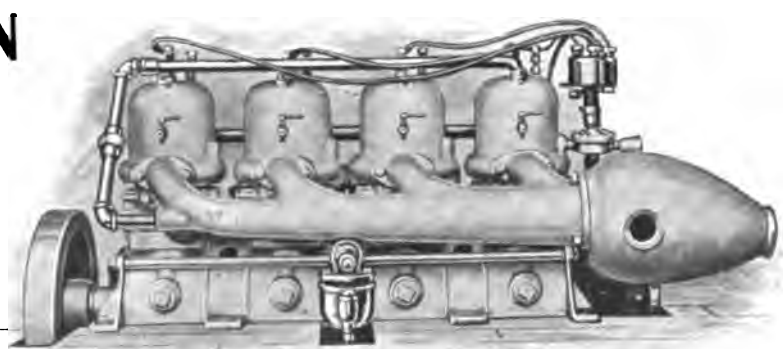
We have still some territory open for agents. Write us today and get our saving payment plan. Ask for booklet J.

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WAYNE COUNTY BANK BUILDING DETROIT, MICHIGAN, U. S. A.

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— GAS — } *You Have Been Seeking*
Saves 85% over gasoline and 65% over steam
Equip YOUR Boat
"Producers" 20 to 500 horsepower
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HAS NO SUPERIOR for both speed and cruiser work
SEND FOR PARTICULARS
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ROCHESTER ENGINES
HAVE BEEN BUILT FOR 12 YEARS

10 SIZES. 4 to 48 H.P.
Detroit Oilers, Schebler Carburetors, Atwater Kent Ignition
All bearing bushings adjustable and interchangeable, made of **Parsons White Brass**. Oil ring to lubricate connecting rod. Sight feed on lubricator, so that the amount of oil feeding can be seen. Piston rings that hold compression. Cylinders, rings and all bearings ground to a perfect fit. *Write for Information*
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THE LEARY TWIN PORT ENGINE
The latest design from the board of Mr. John J. Leary and the result of 16 years' experience designing and manufacturing marine engines.
SOME OF ITS FEATURES
Two Schebler Carburetors—one on each side.
Two By-Pass Ports—opposite each other.
Four Exhaust Ports—set on quarters.
Four Intake Ports—set on quarters.
Non-Backfiring Plates—detachable.
Crank Balance Disks—giving 7 lbs. case pressure.
Baldridge Reverse Gear—Atwater Kent System of Ignition—Oil Gasolene Lubrication.
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SEND for full information about this classy Motor Boat. Well designed and perfectly constructed. Finest materials. Nothing better. Fitted with our 2-h.p. American Motor, there is no better marine engine made. WRITE FOR SPECIAL INTRODUCTORY OFFER. DO IT NOW—TODAY. If you have boat and want engine only, ask for our FREE Catalog of American Motors—all sizes from 2 to 20 h.p.

The AMERICAN Detroit Marine Engine is Guaranteed for Life. The American is simple in design, is easy to understand and operate, and is free from all useless and troublesome parts. It is made interchangeable throughout, so that in case of accident to any part it can be easily replaced with a new one. These are only a few of the many good features of the AMERICAN—if you want to know ALL about it, get our catalog.

The AMERICAN is sold on Thirty Days' Free Trial, and is Guaranteed for life. Any parts that may prove defective will be replaced at any time, free of charge.

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Good Demonstrating Agents Wanted

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NOW IS THE TIME TO THINK ABOUT

putting electric lights into your boat for next season.

When you have installed one of these outfits, you will wonder why you have waited so long.

Think of the convenience of having a complete self-contained lighting outfit on your boat, simply turn a switch and you can flood your cabin with light, turn on starboard, port, low and riding lights.

Dayton Launch Lighting Outfits

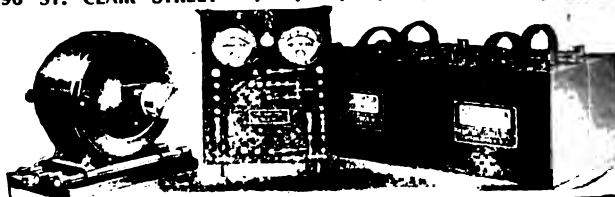
can be had in various sizes, to equip any boat from a small launch to a large cabin cruiser. The outfit is complete, and consists of dynamo, storage battery, wiring, lights and controlling switch.

You can also operate a searchlight with our outfit. If you have gotten thoroughly tired of hot, smelly oil lights that go out, and blow out just when you need them the most, you should send for our latest bulletins describing our lighting outfit.

THE DAYTON ELECTRICAL MFG. CO.

Largest Manufacturers of Ignition and Lighting Apparatus
Exclusively in the World

96 ST. CLAIR STREET : : : : DAYTON, OHIO



RACING EVENTS, 1912—(Continued from page 36)

Wednesday, August 14

Camden M. B. C.—Power-boat races.
Riverside Y. C.—Special regatta.

Saturday, August 17

Cottage Park Y. C.—M. Y. R. A. and Interclub open races.
Harlem Y. C.—Stratford Shoal race.
Stamford Y. C.—Annual regatta.

Monday, August 19

British International Trophy Trials.

Wednesday, August 21

Keystone Y. C.—Long-distance power-boat race.

Saturday, August 24

Boston Y. C.—At Marblehead.
Lynn Y. C.—M. Y. R. A. open races.
New Rochelle Y. C.—Summer regatta.
Northport Y. C.—Annual regatta.
Wilmington Y. C.—Power-boat races.

Friday, August 30

Seawanhaka-Corinthian Y. C.—Special race.

Saturday, August 31

Seawanhaka-Corinthian Y. C.—Special race.
Wollaston Y. C.—M. Y. R. A. open races.

Saturday, August 31, to Monday, September 2

British International Trophy Races.

Monday, September 2

Larchmont Y. C.—Fall regatta.
Norwalk Y. C.—Annual regatta.
Quincy Y. C.—Bermuda Cup race and Interclub open races.
Sachems Head Y. C.—Annual regatta.

Tuesday, September 3

Maumee River Y. C.—Power race to Put-in-Bay and return.

Saturday, September 7

Crescent A. C.—Gravesend Bay championship race.
Indian Harbor Y. C.—Fall regatta.

Sunday, September 8

M. Y. K. A.—Rendezvous at Hull.

Saturday, September 14

Camden M. B. C. (N. J.)—Power-boat races.
Crescent A. C.—Power-boat races.
Manhasset Bay Y. C.—Fall regatta.

Sunday, September 15

Corinthian Y. C. of San Francisco—Power-boat races.

Friday, September 20

Wilmington Y. C. (Del.)—Power-boat races.

Saturday, September 21

Indian Harbor Y. C.—Corinthian Cup race.

Saturday, September 28

Delaware River Assn.—Free-for-all power-boat races.

* * *

YACHTS CHANGE HANDS

The Hollis Burgess Yacht Agency has sold the crack 22-ft. cabin sloop yacht Nereis, formerly Opitsah V, owned by S. Reed Anthony, of Boston, to Herbert A. MacInnis, of the Boston Y. C., who will use her for racing and cruising.

The same Agency has sold the 21-ft. water-line knockabout Jacobin owned by the estate of Theodore W. King, of Dorchester, Mass., to Charles F. Adams, of Brookline, Mass.; the 21-ft. raceabout Loafer, owned by Horace B. Stanton, of Boston, to Sylvester L. Gookin, of the South Boston Y. C.; the 25-ft. water-line auxiliary yawl, Brynhild, owned by Elmer F. Smith, of Marion, Mass., to John C. Edwards, of Brookline, Mass.; and the 21-ft. raceabout Opitsah III, owned by John C. Edwards, of Brookline, Mass., to a prominent member of the Boston Y. C.

STEBBINS' COAST PILOT, By Mail, \$1.25

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This is not only what we claim for



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The most compact, clean, simple and efficient engine on the market. RALACO equipped boats defeated practically every well-known make of marine engine during the past season in races for cruising power boats.



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WANT

**Reliability
Silence
Economy
Freedom from Trouble
and
Satisfaction**

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meet your
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1 to 6 Cylinders 3 to 90 H.P.

Watertown Motor Co. Watertown, N. Y.



DUNN 4-CYCLE MOTORS

1 to 4 cylinders. 1 1/2 to 16 H.P.

They are known the world over for power, ease of starting and smooth running qualities. Reasonably priced.

Write for Catalog.

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T & M MARINE ENGINES



ARE tested out in crafts of all sizes in one of the finest boating lakes in the world—"Winnebago." We know what we guarantee. T. & M.'s start without cranking—throttle to a stop—reverse instantly.

BUILT FOR GREAT SPEED

For all crafts to 65 feet; light, medium and heavy-duty; 1-4 cylinder 2 cycle, 2 h.p. up; 2-4 cylinder 4 cycle, 12-48 h.p. Also electric light generators, Farm Engines and Pumping Outfits. Send for catalogs.

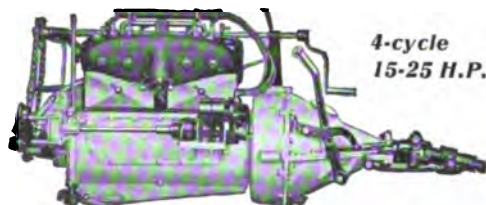
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The "HAZARD" is Distinctly Better



4-cycle
15-25 H.P.

**A Few of the
Special
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All moving parts enclosed, yet readily accessible.
Enclosed flywheel prevents bilge water from short-circuiting magneto in rough seas.
The engine is extremely flexible and will run equally as well at low or high speed.
Investigate our three-point suspension system.

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Philadelphia Sales Agent, W. L. A. Strawbridge, 30 North 6th St., Philadelphia, Pa.

Canadian Distributors, A. R. Williams Machinery Co., Ltd., Toronto, Ont.

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**Any Old Dead
Fish Can Float
Down Stream.
It Takes A Live
One To Go Up.**



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Only Gear Positively Guaranteed

Handsome design, Bull-dog material, smallest in size, light in weight, less parts, hardened steel spur gears, never fails to grip, built by mechanics, adapted for all kinds of boats. Satisfaction or money refunded.

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Metal Valve Closets



are the only Sanitary fixtures for seagoing yachts or long extended cruises. They are absolutely free from odor.

**Commercial No. 5
Price \$60**

The most efficient medium priced closets built. Equipped with metal valves and practically noiseless.



**Motor Yacht Closet
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Built to meet the demand for a low-priced fixture. Equipped with leather valves. Cylinder made of special composition casting. We do not use tubing or recommend hose pipe sea connections.

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THE BLANCHARD MARINE OIL ENGINE BLOW-TORCH

Inability to start quickly the marine oil engine has been an objection often raised against the adoption of this safe and economical source of power. One of the reasons for this, where the ignition has been by the hot plug kept hot by the heat of compression—which is now acknowledged as the most reliable way of igniting the charge of an oil engine—has been due to the inefficiency of the average starting torch by reason of its becoming clogged, requiring preheating, and producing a flame of low temperature.

The Blanchard Machine Company, Cambridge, Mass., the manufacturers of the Blanchard marine oil engine, have spent considerable time and money in perfecting the Blanchard blow-torch, which is suitable for all their marine oil engines, which are made in eight sizes from 8 to 100-h.p. With this blow-torch the engine can be started in less than three minutes, and as both the air and the oil can be regulated at will the operator can secure quickly a flame of large or small volume and of high or low temperature. Contrary to the method employed in the average oil engine torch, the oil is sucked up from the reservoir by a vacuum and not forced up by pressure in the reservoir. With pressure torches there is more or less danger and they cannot be filled while the flame is burning, thus causing great annoyance and inconvenience.

In the Blanchard blow-torch the oil is placed in a small reservoir by removing a small plug which has a vent hole. Resting on the bottom of this reservoir is a copper tube which extends up to the needle valve and affords the passage for the oil. At its lower end it is provided with a strainer, which rests in a cavity in the reservoir. This cavity is placed in the reservoir so that in marine work the rolling of the vessel will not cause the oil to run out from under the tube when the reservoir is only partially filled.

The air from the compressed air tank enters in back of the needle valve and runs through a hold parallel to the same to an outlet at the end of the needle. This flow of air forms a partial vacuum in the space through which the needle valve passes and sucks the oil from the reservoir. When the oil and air come together at the end of the needle valve, the oil is thoroughly atomized and carried in this atomized state through the chimney to the igniter plug. The extra air needed for a complete combustion is partially supplied through the space between the chimney and the cap on the needle.

This Blanchard blow-torch will work on air pressure varying from 15 to 100 lb by adjusting the oil and air valve, and will give a blue flame when working on air pressure from 20 to 50 lb without changing the adjustment of either the air or the oil. As there is no pressure on the oil in the reservoir the torch can be filled while burning without any danger.

The air opening is regulated by a small hand wheel while the amount of oil desired is regulated by turning the handle of the needle valve. In this way the openings can be enlarged for an instant, thus allowing any foreign substance to pass through. They can then be immediately closed down to their proper size. This feature eliminates the greatest trouble which has been common to torches of this character in the past. Some former torches have been designed on the vacuum principle and the air supply may be regulated, but the regulation of the oil and air is a combination only found in this new Blanchard blow-torch.



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Horsepower
BATH MARINE CONSTRUCTION CO.
BATH, MAINE

Easiest to
Build

"I don't see how you do it
for the price."
Is the universal comment of
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There is a reason which we
would be pleased to explain to
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gate knockdown or ready-to-
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WHY tire yourself rowing when one of our detachable row boat motors can be clamped with two thumb screws to the back of any rowboat, anywhere, in a minute? Motor develops 1½ H. P. So light you can carry it like a satchel, so compact you can put it under your auto seat. Steers by swinging propeller. So good we guarantee satisfaction or refund your money.

EVINRUDE DETACHABLE ROW BOAT MOTOR

is not a plaything or an experiment. It is a reliable practical rowboat motor, so simple a child can run it. Over 3,500 in use. Runs 40 miles on a gallon of gasoline. Made for both fresh and salt water. Czarina of Russia has four on her own private yacht.

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**WEIGHS
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**SPEED
8 MILES
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Bore 7 ½ in.
Stroke 10 in.
45-50 H.P. Heavy-
Duty
Price Complete \$1700

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A large factor in your summer's pleasure is the reliability of your motor. Palmer Motors are reliable, first and last. Hunt up a Palmer user and ask him.

"500 Motor Boat Facts" pocket edition, sent free with separate catalog. Address Dept. R.

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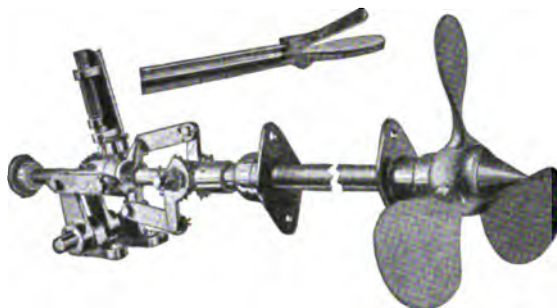
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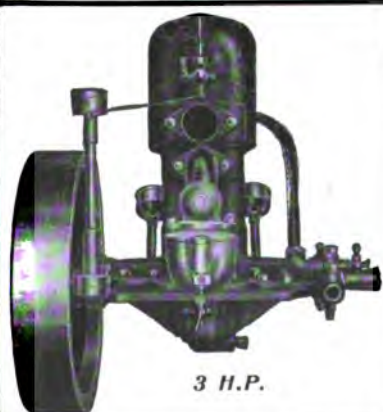
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CHEAPEST, safest, strongest and best. The best insurance you can place on boat. Write for particulars.



3 H.P.

THE SAME OLD RELIABLE CADY MOTOR But All the Latest Improvements

☞ The accompanying cut shows a single-cylinder, two-cycle, three-port motor, bore and stroke 3 5/8 x 3 3/4, revolutions per minute 700, which burns by actual test 2 3/4 gallons of gasoline in ten hours' steady running.

☞ Our motors haven't any nickel plating or much brass trimming—the work and cost are on the parts that need it. We build up to 40 h.p. and will be pleased to send catalog giving full description.

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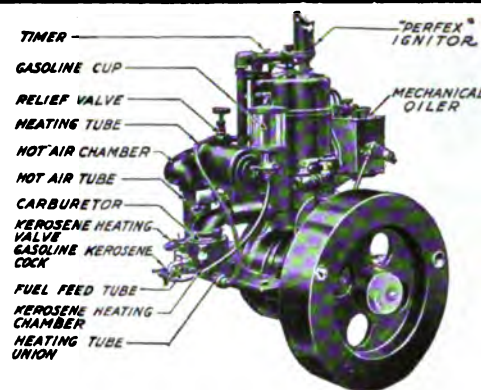
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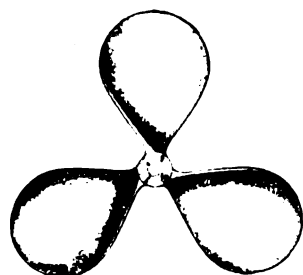
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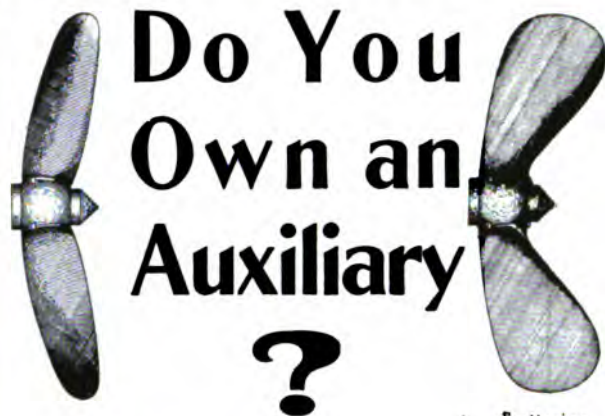
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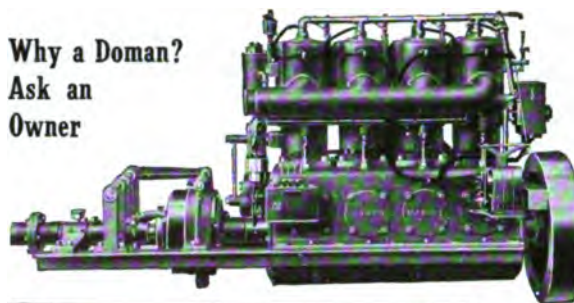
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| Bar Harbor, Me. | Dirigo Boating Co., Bar Harbor, Me. |
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| College Point, L. I. | Geo. L. Stelz, College Point, N. Y. |
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| Nyack, N. Y. | Julius Peterson, Nyack, N. Y. |

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| Thunderbolt, Ga. | W. M. Kidwell, Thunderbolt, Ga. |
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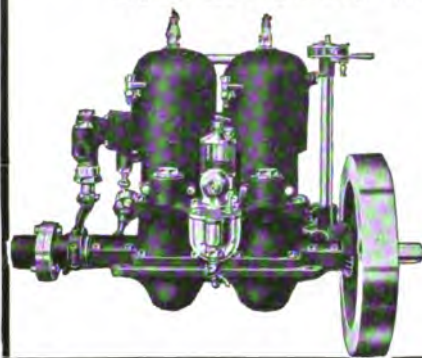
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| Eureka, Cal. | H. Lund, Eureka, Cal. |
| Los Angeles, Cal. | V. J. Reeve, Los Angeles, Cal. |
| Marshallfield, Ore. | Coos Bay Oil & Supply Co., Marshallfield |
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| Portland, Ore. | Oregon Yacht Club, Portland, Ore. |
| Regina, Sask. | Regina Boat Club, Regina, Sask. |
| San Francisco, Cal. | Lewis Q. Haven, 75 Beale St., San Fran. |
| San Pedro, Cal. | C. D. Callahan, San Pedro, Cal. |
| Tacoma, Wash. | A. Foss, Foss Boathouse, Tacoma, Wash. |
| Tacoma, Wash. | A. Foss, Foss' Salm. Bldg., Tacoma, Wash. |
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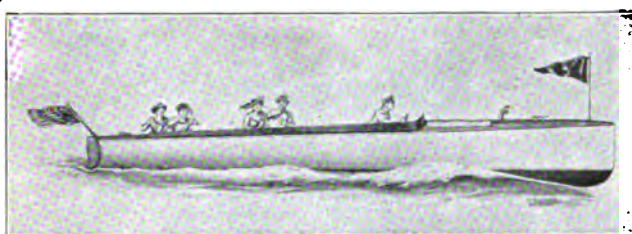
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Length 25 feet; width 5 feet 2 inches; depth at midsection 28 inches. Mahogany trim; copper fastened throughout; copper fuel tank—RIGHT IN EVERY PART. Equipped with a 4-CYLINDER, 4-CYCLE MARINE MOTOR OF AUTOMOBILE REFINEMENT and FULL BULKHEAD CONTROL.

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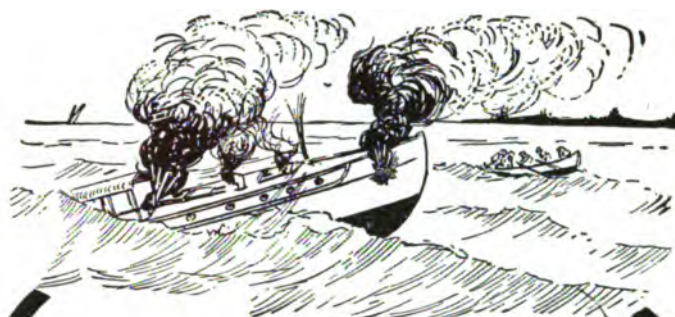
"Victor" Capstan STRONG, COMPACT EFFICIENT

The best and cheapest capstan on the market. You can stand up to work with a "Victor." Can be reversed, in a second, to revolve in opposite direction.

Write for Sizes and Prices

Patented March 21, 1899

Manufactured by
Wilcox, Crittenden & Co., INC.
Middletown, Conn.
ESTABLISHED 1847



Don't Risk Fire At Sea?

Are you risking your life and the safety of your boat or are you playing safe and taking no chances? If you allow gasoline fumes, heavy oils, greases, gas and vapor to collect in the bilge you are inviting disaster in the form of fire or explosion. The one sure way to insure safety on this score is to install an

Aaron Automatic Bilge Pump

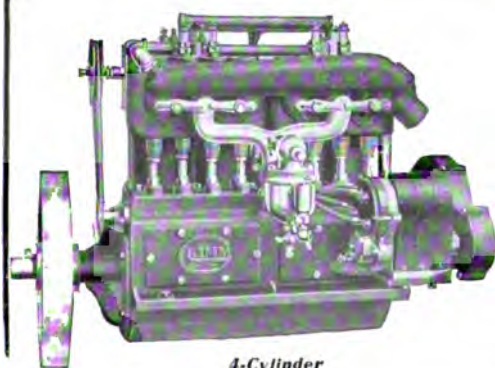
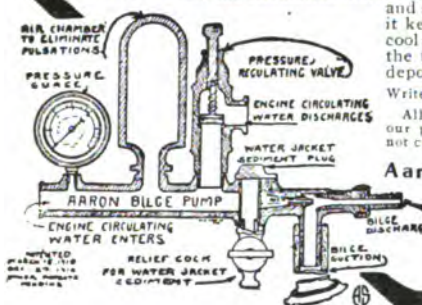
This pump is attached to your engine and automatically keeps your bilge pumped dry and clean all the time. Works every minute the engine is in operation yet does not take a bit of power from the engines.

The Aaron pump is connected in the water circulating system and by making the circulation more uniform and drawing all dirt and sediment from the water it keeps the engine running cool and smoothly. Saves you the trouble of ever cleaning deposits out of water-jackets.

Write for full information today

All first-class dealers handle our pumps. If your dealer does not carry our pumps, write us.

Aaron Automatic Bilge Pump Co., Inc.
Howard Building
Providence, R. I.



4-Cylinder

Motor-Boat Bugs, Think of It



2-Cylinder, 6-8 H.P. - \$150.00
4-Cylinder, 12-16 H.P. - \$250.00
6-Cylinder, 18-25 H.P. - \$375.00

4-cycle motors for Speed Boats, Cruisers or Runabouts. Complete with Ignition, Carburetor, force-feed Valveless Oilier and Circulating Water-Pump.

SEND FOR CATALOG

GRIMM MANUFACTURING CO., 41 Erie St., Buffalo, N. Y.

JOHN W. PAYNE, Alexandria Bay, N. Y.; TAYLOR SUPPLY CO., Baltimore, Md.; MOTOR BOAT AND SUPPLY CO., Cleveland, Ohio; MOTOR BOAT AND AUTO SUPPLY CO., Cincinnati, Ohio; WATERLOO GASOLINE ENGINE WORKS, New York City, N. Y.; W. J. HICKEY, Ottawa, Canada; ROBER MACHINERY CO., Portland, Oregon; MARINE CONSTRUCTION CO., Toronto, Ontario; MOTOR BOAT EXCHANGE, Washington, D. C.

NEW EQUIPMENT AT DURKEE'S

The Reliable Fire Extinguisher is the result of very careful consideration of the conditions met at sea in gasoline boats. It will almost instantly extinguish blazing gasoline and other highly inflammable fluids, and at the same time it is harmless and will not destroy varnish, corrode the engine or damage the most delicate fabric.

It is put up in a hard brass cylinder, 15 inches long, 4 inches in diameter, and weighs 6 lb. It contains three pints of chemicals, and will throw a stream 30 ft. in any direction.



In some extinguishers, where compress air is used, it is absolutely necessary to use the complete contents once opened, while with the Reliable you may use a few drops and still have a good supply in reserve, which is good until used.

The cylinder is of unusually heavy construction, and will stand a lot of hard use, being practically indestructible.

The chemicals will not freeze or deteriorate, and, being harmless, can be used by anyone anywhere.

THE "SEAPRUF" DRY BATTERY

This battery, while a little higher in price, saves the additional cost many times over through its efficiency.

It is not affected by dampness and possesses all the features of the most perfectly made waterproof battery box, at a fraction of its cost.



The absence of leakage means longer life, and in fact "Seapruf" batteries may be installed where moisture collects.

They will operate successfully where any other make will lose its power and become useless in a short time.

No separate connections are needed, as "Seapruf" comes wired for instant service.

ADJUSTABLE STUFFING-BOX

The Durkee adjustable stuffing-box may be adjusted to any angle of the shaft. The half-ball socket gives unusual freedom when installing, and at the same time positive alignment. It relieves the engine of all strain and always remains perfectly tight.

"SEAPRUF" TROUBLE FINDER

Trouble-hunting in the dark is rather dangerous around a gasoline engine. The Durkee "Seapruf" switch and trouble lamp attachment solves the problem. You simply insert a socket in your switch, which is attached to a hand lamp, and all regions of engine may be safely examined. For adjusting your carbureter, advancing your spark, oiling your engine, or any other need, it will be found invaluable.

UNIVERSAL STRUT HANGER

While numerous strut hangers are made, the Durkee strut, which is adjustable to any angle, is guaranteed not to bind or stick and to last indefinitely without repair or replacement of any kind.



It is very substantially constructed, and will be appreciated by all boat-builders as one of the greatest aids in simplifying engine installation and enabling the engine to deliver its full rated power to the wheel.

RUSHED WITH ORDERS

The Vim Motor Company, of Sandusky, Ohio, manufacturers of the well-known Vim engine, are rushed with orders, due in a measure to their large export business, recent shipments having been made to Austria, England, Finland, Java, Alaska, Africa, Australia and Mexico.

Business so far this year has also increased over 100% in this country and Canada, which is due perhaps to the many new and advantageous features embodied in the 1912 Vim.

The positive non-backfiring device and the non-adjusting carbureter are very popular and have not only simplified the engine but, further, have increased its efficiency.

The Vim Motor Company are having success with their 2-cylinder, heavy-duty 12-h.p. equipped with double ignition, consisting of Bosch magneto and battery system, also Paragon gear, all mounted on one base in a unit power plant.

This engine has been very popular, especially among Lake Erie fishermen, and during the month of April twenty-four of these outfits were contracted for by the large fish companies on the South shore of Lake Erie, who have used Vim engines for the last eight years.

PROPELLERS

A very neat and handsome catalog will be mailed to all interested in propellers by the Columbian Brass Foundry, 214 N. Main St., Freeport, N. Y.

The company claim, with their present equipment and new building, they have the largest factory in the country devoted to propeller wheels.

In their new catalog they show numerous wheels for racing and cruising boats that made records in 1911, as well as their latest line for 1912.

FAULTLESS **BOAT BUILDING MADE EASY**

The Valley Boat & Engine Co.

Will send you catalog, bulletin, and two interesting little books for the asking.

Our line of stock boats is the most up-to-date line on the market.

Let us quote you prices on the boat you want.

We have a large number of designs and permanent moulds for each. Give us a chance to figure with you on your new boat.

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| Speed Boats, | Erected Frames, |
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| Gasoline Engines, | Boat Accessories. |

VALLEY BOAT & ENGINE CO.
702 Hes. St., Saginaw, Mich.



ANDERSON ENGINE

Don't Be Prejudiced

The good points of the engine you know may be completely eclipsed by some other engine.

You can't KNOW without investigating.

Be fair. Investigate. Tell us what sort of craft you wish to equip and let us prescribe. Then Compare, Compare, Compare.

Made in America. Sold and used in practically every country on the globe.




ANDERSON ENGINE CO.
160 N. 5th AVE., CHICAGO, ILL. Factory SHELBYVILLE, ILL.

1912 Auto Craft Catalog

Get it now.

GIVES illustrations, complete specifications and prices of all our models, including Cruisers, Commercial Launches, Runabouts, Family Launches, Canoes, Rowboats, etc.

THE CLEVELAND AUTO BOAT MFG. CO.
Dealers in all large cities, 1044 River Av., Cleveland



Boats

WE BUILD THEM TO YOUR DESIGN OR OURS. SOME ON HAND

Launches, Knockabouts, Raters, Catboats, Rowboats, Dinghies, Combination Sail and Row Canoes for pleasure boating, cruising, racing, camping, hunting, etc. Our designs are modern. Send 10c for catalog.

J. W. HEPBURN, Toledo, Ohio, U. S. A.

YOU CAN BUILD THIS HANDSOME POWER BOAT



Only \$25 for knockdown frames, patterns, and instructions for this 23-footer—speed 9½ to 14 miles an hour. Everything made simple. Easy to build if you can handle hammer, saw and screw-driver. We also furnish complete knockdown boat. Or patterns alone at from \$2 to \$12, according to design. Thousands of Brooks boats in use and building now. It's fun—and profit—and summer pleasure to build a boat.

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Today—just a postal. Mailed free. Scores of models and sizes of all kinds illustrated. Save 2/3 the boat-builder's price. Get our offer. Address

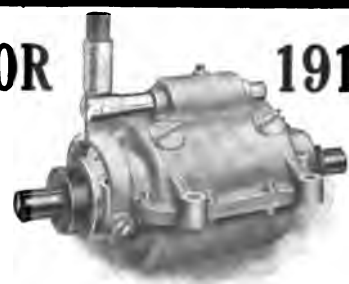
BROOKS MFG. CO. 8806 Rust Ave., Saginaw, Mich.

THE JOHNSON MARINE REVERSE GEAR

IN A NEW TYPE FOR COMPACT AND NEAT ENCASED BUT ACCESSIBLE TELLS THE STORY

1912, FROM 1 TO 10 H.P. SILENT AND POWERFUL JOHNSON AND QUALITY

Guaranteed for One Year



THE CARLYLE JOHNSON MACHINE CO. MANCHESTER, CONN.

JENCICK ENGINES

The Jencick Motor Corporation, of Port Chester, N. Y., has endeavored to produce in the Jencick an engine which represents the highest grade of materials and accessories obtainable, and which is the result of constant effort combined with mechanical ability. This, with 20 years' experience, has produced an engine which has gained a remarkable reputation in its class. The Jencick has proven that quality gives service.

Jencick engines are built in two distinct types, high speed and medium speed. The high-speed type ranges in power from 12 to 300-h.p.; the medium-speed line from 15 to 75-h.p.

The following materials enter into the construction of Jencick engines: Krupp chrome nickel steel, manganese bronze, nickel aluminum being used for base construction—all minor bearings, such as cam-shaft, intermediate gearing pump, magneto timer and oil driving shafting. Reverse gears for high-speed engines are mounted on Hess-Bright annular ball bearings, the main shaft and connecting-rod being of Parsons' white brass, the piston pin bushing of phosphor bronze; push rods, crank-shafts, piston pins and gearing for high-speed reverse being of Krupp chrome nickel steel. Vanadium and nickel steels are used in the minor shafting, such as pump, magneto, timer, etc. All parts, such as push rod, guides, water pump and minor details are of phosphor bronze.



Monel metal is used for studs and nuts which are exposed, thus preventing rusting of these parts and at the same time obtaining a very strong material, the tensile strength of this metal, in drawn form, being about 86,000 lb per sq. in. The cam-shaft is one piece, whereas in a 6-cylinder engine constructed under old methods, it would consist of seventeen pieces. This shaft is case-hardened in oil, to glass-like hardness, at the same time increasing its tensile strength from 110,000 to 240,000 lb per sq. in., and giving everlasting durability. This same treatment is given to the piston pin and crank-shaft. The superiority of ball bearings over plain is palpable.

Manganese bronze is used for the upper base construction, as it has been found superior to other metals, as the base, to which the cylinders are bolted, and which supports the cam-shaft and all revolving parts, must be the most rigid part of the engine. The company considers the base the foundation of the engine, and the slightest twist or bend of the base throws all the working parts out of alignment, and results in pounding and breaking of shafts if the base is not built of the best possible materials. Owing to the great strength of manganese bronze, which is 80,000 lb per sq. in. tensile strength, the Jencick engine bases are almost as light as if made of aluminum, and about seven times as strong, it is claimed.

Connecting-rods are of nickel steel, drop forged, and each

has four nickel steel clamping bolts on each crank-pin and bearing.

The cylinders are of T model, case in units of close-grain semi-steel. The explosion chambers, or heads, are dome-shaped, ensuring safety. When in heated condition the explosion which takes place is less liable to rupture a dome-head, it is claimed, than a square head. The jackets being cast integral, add to the simplicity of the engine, there being no packing used between the head and the barrel, making it possible to maintain a uniform ratio of expansion and the highest efficiency of all temperatures.

Valves are easily accessible for grinding, when necessary. Ignition is furnished by Bosch high-tension magnetos, dual system being standard. Reverse gears are of disc friction type, and for high-speed engines are positive locking. Lubrication for the crank-shaft and connecting-rod is by force and splash systems. A force-feed lubricator is used for piston lubrication.

An air-starting device of the company's own design can be applied to any Jencick engine. This device is positive in operation, and very simple in construction.

All Jencick engines are subjected to a test of 4-hours' duration under full load, using a hydraulic brake before they leave the factory. Water-cooling system, which is used on Jencick engines, which this company has originated from its beginning and that is, using a slow-speed plunger pump and so arranging them that one water-pump cylinder cools two of the combustion cylinders, or in other words, a 2-cylinder pumps for a 4-cylinder engine, three for six and four for eight and six for twelve being used. The benefit derived from this is equal distribution of water and equal cooling, no throttling apparatus are provided in this system. It must be considered that unequal cooling produces an irregular running engine and that the cylinder which received the least water will naturally work under greater strains than the cylinder that operates under cooler temperature; the result is that the heated cylinder, being overloaded, produces pounding or does the work of its neighbor.

These and other features are responsible for the smooth qualities of the Jencick engines. Full particulars of the Jencick engines will be found in a useful and interesting catalog which will be sent upon request to any reader of The Rudder.

REDUCED PRICES

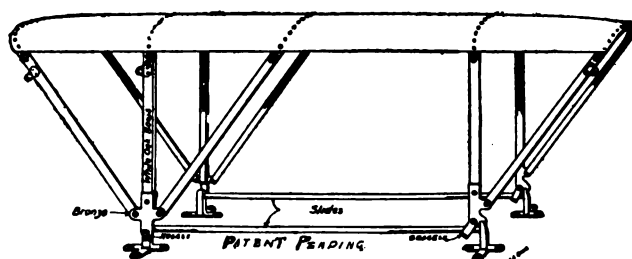
BEFORE STOCK TAKING ON ALL

TOPPAN

Dories
Cruisers
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Motors

Also Knocked-Down Frames and Patterns

Write **TOPPAN BOAT MFG. COMPANY**
9 Haverhill Street, Boston, Massachusetts

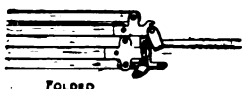


FRAME CONSTRUCTION

1912 LEADER

AND ECONOMY AUTO BOAT TOP

Chas. P. McClellan
FALL RIVER, MASS.



Safety, Convenience, Reliability, Good Looks, the Quality of Wear, are the Qualities of the McClellan Safety Auto Boat Top which appeal to the Motor-Boat Owners.

Considered Generally Satisfactory by U. S. Navy, Naval Constructors, Leading Architects and the Leading Builders of High-Grade Motor Boats.

Because of their special features: the one-man control when handling, no matter how large the top, under any and all conditions: the automatic fastenings, which allow easy access, in case of accident to the passengers, to get out of the boat.

This alone is too important to let pass without your consideration.

The McClellan Safety Auto Boat Top costs no more than ordinary carriage top called boat top. 1912 catalog tells you all about them—yours for the asking.

CHAS. P. McCLELLAN **FALL RIVER, MASS.**

Manufacturer of Boat Tops, Spray Hoods, Life-Preservers, Cushions and Pillows, Awnings, Tents, Flags, etc.



A New Water Sport The AQUAPLANE

Thrilling—Fascinating—Exciting

The AQUAPLANE is used in connection with any motorboat, yacht or launch capable of a speed of eight miles

an hour or better. Riding at 25 is nothing short of speed intoxication. Have some push, take a joy ride, and get a pull. The AQUAPLANE is only \$3.50.

Write for our circular.

THE AQUAPLANE COMPANY,

Suite "C" 315 Roanoke Building, CHICAGO, ILL.

LLAO A 25-MILE-AN-HOUR YACHT TENDER



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ATKIN-WHEELER COMPANY

YACHT DESIGNERS and BUILDERS

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Decorators, Plumbers, Etc. Estimates for Docking and Coating Large Yachts

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Fifth Edition

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With Something New

140 WATER STREET
NEW YORK

A reliable liquid compass with a 3-in. card illuminated from below: no flicker, no smell, all points distinctly visible without glare. Simply turn a button and you have a soft, steady light unaffected by the fiercest squall.

This is an age of specialists. Don't buy important navigating instruments sold as a side line to anchors and ring bolts. Get the best. We've been instrument specialists for over sixty years



What is the Distance from Lloyds Neck to Larchmont?

Find the answer in the POCKET COURSE BOOK. Price Twenty-five Cents.

THE RUDDER PUBLISHING COMPANY
1 Hudson Street, New York



Equip your boat with Pneumatic Air Mattresses and Cushions. Every cushion a Life-preserver. Every mattress a Life-raft. American and Red Star Line equipped with Pneumatic Beds. Warranted air-tight.

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Pneumatic Mfg. Co.
526 17th Street
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\$625

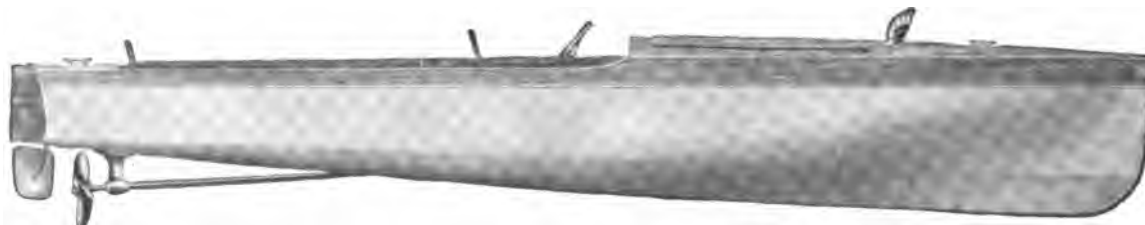
NIAGARA SPECIAL

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LENGTH 24 FEET

COMPLETE WITH POWER

BEAM 4 FEET 10 INCHES



THIS IS ONLY ONE ASK ABOUT THE OTHERS

Send at once for specifications and new complete boat literature

NIAGARA MOTOR BOAT CO.

250 SWEENEY STREET

NORTH TONAWANDA, N. Y.

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"SANDS" Sanitary Fixtures

The "BOW" CLOSET

A New Fixture for Small Boats



THE "BOW" CLOSET. PLATE S-2050
(Design Patent Applied For)

Pump rough with finished trimmings, oak seat, N. P. Brass post hinges \$30.00
Sea Cocks for supply and discharge, with strainer, per pair 7.50

Vitro-Adamant flushing rim bowl. Our special non-corrosive 2½ inch improved combined supply and waste pump, located at rear, fitted with swing handle. Quick opening supply valve. Space occupied 15 x 24 inches.

DIMENSIONS: Front to back 23 inches, width 14 inches, height 12 inches. Net weight 35 lbs., shipping weight 50 lbs.

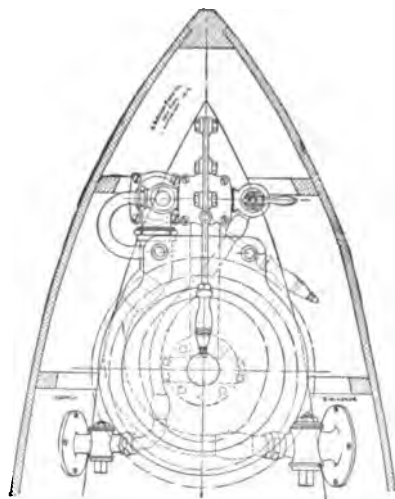


PLATE S-2052
SUGGESTION OF INSTALLATION WITH PAIR
OF OUR SPECIAL SEA COCKS



PLATE S-129

The "Glenora"
Composition Flange
and Coupling for use
on supply and dis-
charge pipe of clos-
ets, straight or bent
coupling.

PRICE

| | |
|--------|--------|
| ¾ in. | \$2.25 |
| 1 in. | 3.00 |
| 1½ in. | 5.25 |
| 2 in. | 8.00 |

Composition raised
strainers 25c extra.

Large Assortment of Closets, Lavatories, Deck Plates, Ventilators, Portlights,
Bain and Galley Pumps, shown in CATALOG "B," free upon application.

A. B. SANDS & SON COMPANY

1849 "Pioneers for Over 60 Years" 1912

LARGEST MANUFACTURERS IN THE WORLD OF
MARINE PLUMBING SPECIALTIES

22-24 VESEY STREET

NEW YORK, U. S. A.

REGAL AGENCY AT MELBOURNE

The Regal Gasoline Engine Company of Coldwater, Mich., U. S. A., report that their representative, W. C. Oxley, at Melbourne, Australia, has recently moved into large new quarters in the heart of the business section of that city. As shown by the accompanying photograph, the building itself is a beautiful one with every facility for displaying to advantage the large line of Regal engines that Mr. Oxley always keeps in stock.



W. C. Oxley, himself, is one of the most prominent yachtsmen in the city and with his many boats, all powered with Regal engines, has held undisputably a number of first-prize racing cups.

He has had the agency for Regal engines for the past five or six years and has during this time built up an immense trade in this engine so largely known all over the world.

MORRIS HEIGHTS

Work goes rapidly forward on the new craft being built at the immense plant of the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., located at Morris Heights, New York City. The new twin screw power yacht Mary II, for Mr. John F. Harrigan, of Detroit, Mich., is rapidly nearing completion and will leave for the Lakes in about three weeks. A very handsome 35-ft. power tender, built for Colonel A. H. Payne's steam yacht Aphrodite, will be delivered in a few days, as will also the new yacht tender for the S. Y. Irolita, owned by Com. E. W. Clark, of Philadelphia.

Sultana, owned by Mrs. E. H. Harriman, will carry a new 30-ft. teakwood power tender this season, and a Speedway power tender has just been completed for the S. Y. Maspeth, owned by Mr. C. M. Meyers. A 25-ft. power boat shipped to the Chicago House Wrecking Company, at Colon, Panama, and a 32-footer, shipped at the same time for the Isthmian Canal Commission, have both been equipped with Speedway engines. The 35-ft. power boat being built for Mr. A. E. Burk, of Philadelphia, Pa., for use at Atlantic City, is ready to take to the water. This boat is of a very handsome type and was designed for sea work. It has a guaranteed speed of 18 to 20 miles per hour.

The Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., also report an order that has been placed by Mr. A. E. Bechstein, of New York City, for a new 46-ft. midship deck power boat to be used principally for day service. This will be an exceptionally well finished boat and is to be powered with a 6-cylinder, 6 by 6-in. Speedway engine, attaining a speed of 14 to 15 miles per hour. A very similar boat, built for Mr. A. H. Morris and named Prana, went into commission a few days ago.

En répondant aux annonces veuillez mentionner THE RUDDER



DETACHABLE
SPARK PLUG
RENEWABLE
PORCELAIN

PERFEX IGNITOR

Contains a non-vibrating induction coil. A master vibrator is supplied which feeds current to an ignitor on each cyl.

Perflex

WATERPROOF IGNITION

WITH A

High-Tension Magneto

An ideal strictly independent system for starting, assuring against possible inoperation of the engine from moisture on magneto or high-tension wires.

Your "Dink" with a 1-cyl. Jump-Spark Engine and a Perflex "All-in-One" is an unbeatable combination. The ignition laughs at the water.

ELECTRIC GOODS MFG. CO., DESK 3 CANTON MASS.



DETACHABLE
SPARK PLUG
RENEWABLE
PORCELAIN

PERFEX "ALL-IN-ONE"

Combines an induction coil, condenser and vibrator within a moulded waterproof case and a detachable spark plug.

Safeguard Your Vacation Days

FIRES in Motor Boats and in summer camps and cottages have ruined many a vacation. Why not be reasonably cautious? Equip your motor boat, your camp or your cottage with PYRENE Fire Extinguisher.

PYRENE Extinguishers will conquer flames in the most highly inflammable materials. They are particularly adapted to motor-boat and Automobile Fires.

They will ferret out the most inaccessible flames—and speedily extinguish the fire. PYRENE employs a new principle in fire fighting. It smothers the flames with a heavy gas blanket and does not wet down.

PYRENE will not damage varnished surfaces or upholstery.

INCLUDED IN THE LISTS OF APPROVED FIRE APPLIANCES ISSUED BY
THE NATIONAL BOARD OF FIRE UNDERWRITERS AND
APPROVED BY THE UNITED STATES STEAMBOAT INSPECTION SERVICE

PYRENE Extinguishers can be refilled as readily as kerosene lamp. Their contents will not deteriorate with age. They are always ready for use. They are 14 inches long, 3 inches in diameter and weigh only 5 lbs. filled.

Prices: \$7.00 in brass and \$8.00 full nickel plated.

WRITE FOR OUR ILLUSTRATED BOOKLET. ADDRESS DEPT. P.

PYRENE MFG. CO. 1358 Broadway, New York, N. Y.



THE A-B-C LIFE-RAFT

The A-B-C life-raft shown in the cut has just been put on the market by the Welin Davit and Lane & De Groot Company, Cons., of Long Island City.

There has long been a demand for small rafts for use on power boats, and the manufacturers, who earlier developed

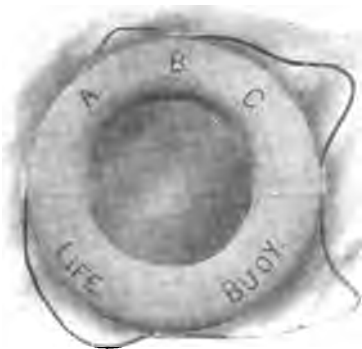


the small and compact life-belt known as the A-B-C, designed this useful, as well as ornamental-looking raft to meet the requirements.

The raft is solidly made of a light and very buoyant tropical wood, having double the strength of cork and only



two-thirds its weight. It is subjected to a waterproof process which prevents all penetration of moisture and insures it against rotting. After being canvas covered, bronze straps and hollow rods are attached to carry the netting inside. The finished article forms a strong, durable life-raft, small



in size, handy to stow on a trunk cabin and an ornament of actual utility for all power boats.

The rafts are made up in three sizes, from 4 to 7 ft. in length. The medium size weighs only 45 lb and will easily sustain eight persons in the water. In case of accident the raft can be thrown overboard by one person from its posi-

tion on the trunk cabin or deck, and its presence on any power boat should carry with it a sense of safety and security.

The Welin Davit and Lane & De Groot Company are also turning out a large number of their A-B-C life-rings and belts. The latter, khaki-covered, have been adopted as the "Yachting Life-Preserver" par excellence on account of their smaller size, durability and neat appearance, and they are rapidly supplanting the old-fashioned cork belts.

The question of life-saving appliances is one that should receive the careful attention of every person who desires full enjoyment from power boating.

SERVICE OF NAVAL ARCHITECT

More dissatisfied power-boat users are developed through securing a type of hull or engine unsuitable for their purpose than any other way. This fact has long been recognized by both boat-builders and gasoline engineers, but up to the present none of them has suggested a remedy for what every one knows to be a bad state of affairs.

To insure the proper type of hull being used and the proper horsepower engine being installed in it by its customers, the Ferro Machine and Foundry Company, has established a department in Naval Architecture, so that any of its customers who are considering the purchase or building of a boat can have expert advice concerning this matter free of charge.

The Ferro Company has engaged Mr. Henry C. Wright as head of the department, and its future development is under his charge. He assumed his duties in Cleveland on March 11th, and has already made considerable headway in the organization of his department.

Mr. Wright is a very capable naval architect of 14 years' experience. He began his career, after leaving college, at The Maryland Steel Company, at Sparrows Point, where he spent one year in the shipyard, doing the actual work so that he could gain valuable and practical experience for his future work.

Prior to this time he graduated at the Maryland Institute in mechanical drawing, finishing the three-year course in two years, and winning the first prize; also the Peabody scholarship. This was a valuable asset at this time, and assisted him to enter the Trigg Shipbuilding Company's designing department at Richmond, where he remained one year. He then went to the Bath Iron Works, where he spent nine years in their department of Naval Architecture. This was extremely valuable experience, as he was given the task of designing all parts of the ship from keel to turrets, as well as making all calculations pertaining thereto.

He was with the firm of Tams, Lemoine & Crane, where he spent two years.

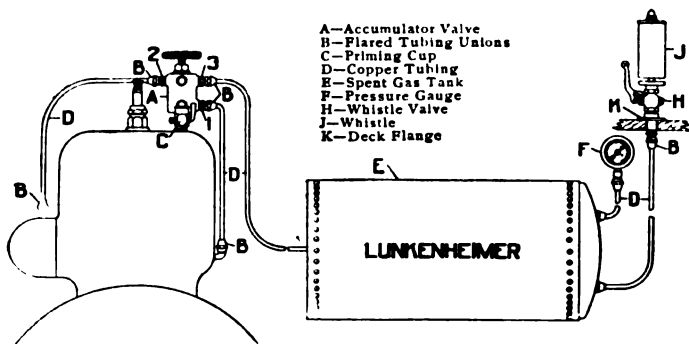
The step taken by The Ferro Machine and Foundry Company is a wise one, as nowadays a naval architect is a necessity in the selection of the type of boat for certain waters, and the correct engine installation, etc.

BUSY YARD

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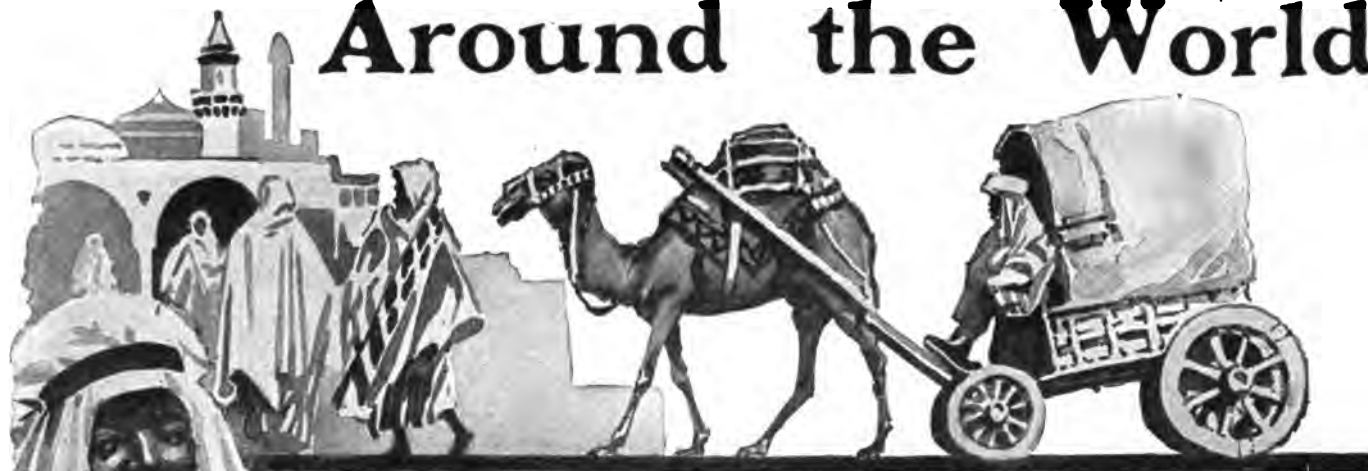
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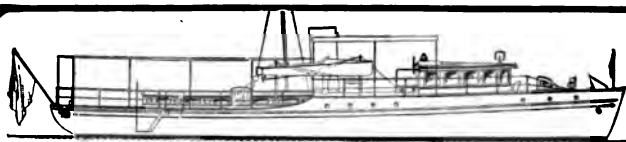
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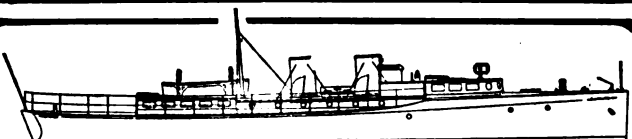
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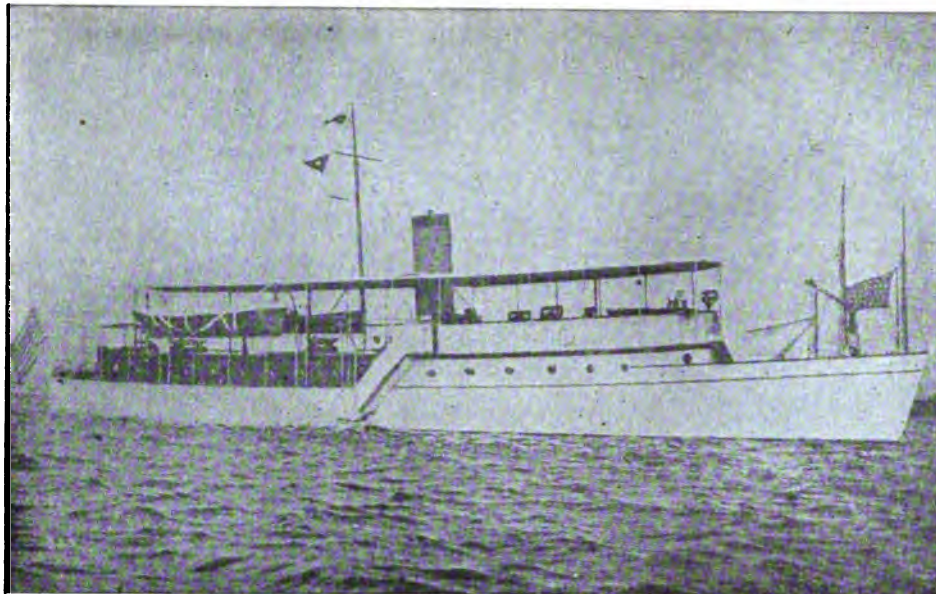
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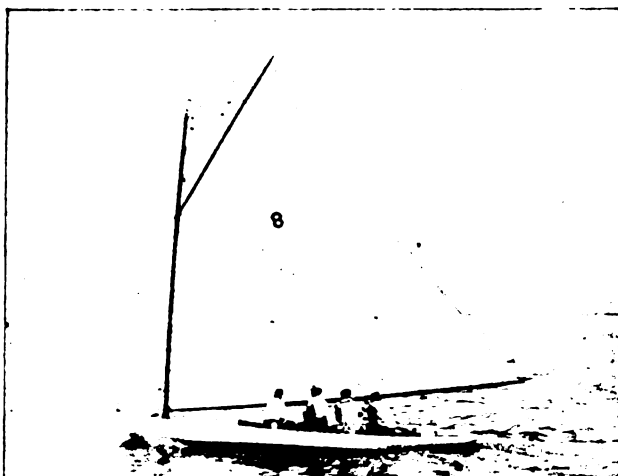
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